Home Study Packet

# Saxon Math 87

An Incremental Development

HAKE
SAXON

*Math 87: An Incremental Development*

*Home Study Packet*

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# *Home Study Packet*
## *for*
# *Math 87*

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by
**Stephen Hake and John Saxon**

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# *Answers*

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**Test A—100 Addition Facts** **Name** _____ **Time** _____

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 + 2 = 5 | 8 + 3 = 11 | 2 + 1 = 3 | 5 + 6 = 11 | 2 + 9 = 11 | 4 + 8 = 12 | 8 + 0 = 8 | 3 + 9 = 12 | 1 + 0 = 1 | 6 + 3 = 9 |
| 7 + 3 = 10 | 1 + 6 = 7 | 4 + 7 = 11 | 0 + 3 = 3 | 6 + 4 = 10 | 5 + 5 = 10 | 3 + 1 = 4 | 7 + 2 = 9 | 8 + 5 = 13 | 2 + 5 = 7 |
| 4 + 0 = 4 | 5 + 7 = 12 | 1 + 1 = 2 | 5 + 4 = 9 | 2 + 8 = 10 | 7 + 1 = 8 | 4 + 6 = 10 | 0 + 2 = 2 | 6 + 5 = 11 | 4 + 9 = 13 |
| 8 + 6 = 14 | 0 + 4 = 4 | 5 + 8 = 13 | 7 + 4 = 11 | 1 + 7 = 8 | 6 + 6 = 12 | 4 + 1 = 5 | 8 + 2 = 10 | 2 + 4 = 6 | 6 + 0 = 6 |
| 9 + 1 = 10 | 8 + 8 = 16 | 2 + 2 = 4 | 4 + 5 = 9 | 6 + 2 = 8 | 0 + 0 = 0 | 5 + 9 = 14 | 3 + 3 = 6 | 8 + 1 = 9 | 2 + 7 = 9 |
| 4 + 4 = 8 | 7 + 5 = 12 | 0 + 1 = 1 | 8 + 7 = 15 | 3 + 4 = 7 | 7 + 9 = 16 | 1 + 2 = 3 | 6 + 7 = 13 | 0 + 8 = 8 | 9 + 2 = 11 |
| 0 + 9 = 9 | 8 + 9 = 17 | 7 + 6 = 13 | 1 + 3 = 4 | 6 + 8 = 14 | 2 + 0 = 2 | 8 + 4 = 12 | 3 + 5 = 8 | 9 + 8 = 17 | 5 + 0 = 5 |
| 9 + 3 = 12 | 2 + 6 = 8 | 3 + 0 = 3 | 6 + 1 = 7 | 3 + 6 = 9 | 5 + 2 = 7 | 0 + 5 = 5 | 6 + 9 = 15 | 1 + 8 = 9 | 9 + 6 = 15 |
| 4 + 3 = 7 | 9 + 9 = 18 | 0 + 7 = 7 | 9 + 4 = 13 | 7 + 7 = 14 | 1 + 4 = 5 | 3 + 7 = 10 | 7 + 0 = 7 | 2 + 3 = 5 | 5 + 1 = 6 |
| 9 + 5 = 14 | 1 + 5 = 6 | 9 + 0 = 9 | 3 + 8 = 11 | 1 + 9 = 10 | 5 + 3 = 8 | 4 + 2 = 6 | 9 + 7 = 16 | 0 + 6 = 6 | 7 + 8 = 15 |


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**Test B—100 Subtraction Facts** **Name** _____ **Time** _____

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16 − 9 = 7 | 7 − 1 = 6 | 18 − 9 = 9 | 11 − 3 = 8 | 13 − 7 = 6 | 8 − 2 = 6 | 11 − 5 = 6 | 5 − 0 = 5 | 17 − 9 = 8 | 6 − 1 = 5 |
| 10 − 9 = 1 | 6 − 2 = 4 | 13 − 4 = 9 | 4 − 0 = 4 | 10 − 5 = 5 | 5 − 1 = 4 | 10 − 3 = 7 | 12 − 6 = 6 | 10 − 1 = 9 | 6 − 4 = 2 |
| 7 − 2 = 5 | 14 − 7 = 7 | 8 − 1 = 7 | 11 − 6 = 5 | 3 − 3 = 0 | 16 − 7 = 9 | 5 − 2 = 3 | 12 − 4 = 8 | 3 − 0 = 3 | 11 − 7 = 4 |
| 17 − 8 = 9 | 6 − 0 = 6 | 10 − 6 = 4 | 4 − 1 = 3 | 9 − 5 = 4 | 9 − 0 = 9 | 5 − 4 = 1 | 12 − 5 = 7 | 4 − 2 = 2 | 9 − 3 = 6 |
| 12 − 3 = 9 | 16 − 8 = 8 | 9 − 1 = 8 | 15 − 6 = 9 | 11 − 4 = 7 | 13 − 5 = 8 | 1 − 0 = 1 | 8 − 5 = 3 | 9 − 6 = 3 | 11 − 2 = 9 |
| 7 − 0 = 7 | 10 − 8 = 2 | 6 − 3 = 3 | 14 − 5 = 9 | 3 − 1 = 2 | 8 − 6 = 2 | 4 − 4 = 0 | 11 − 8 = 3 | 3 − 2 = 1 | 15 − 9 = 6 |
| 13 − 8 = 5 | 7 − 4 = 3 | 10 − 7 = 3 | 0 − 0 = 0 | 12 − 8 = 4 | 5 − 5 = 0 | 4 − 3 = 1 | 8 − 7 = 1 | 7 − 3 = 4 | 7 − 6 = 1 |
| 5 − 3 = 2 | 7 − 5 = 2 | 2 − 1 = 1 | 6 − 6 = 0 | 8 − 4 = 4 | 2 − 2 = 0 | 13 − 6 = 7 | 15 − 8 = 7 | 2 − 0 = 2 | 13 − 9 = 4 |
| 1 − 1 = 0 | 11 − 9 = 2 | 10 − 4 = 6 | 9 − 2 = 7 | 14 − 6 = 8 | 8 − 0 = 8 | 9 − 4 = 5 | 10 − 2 = 8 | 6 − 5 = 1 | 8 − 3 = 5 |
| 7 − 7 = 0 | 14 − 8 = 6 | 12 − 9 = 3 | 9 − 8 = 1 | 12 − 7 = 5 | 9 − 9 = 0 | 15 − 7 = 8 | 8 − 8 = 0 | 14 − 9 = 5 | 9 − 7 = 2 |


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**Test C—100 Multiplication Facts** **Name** _____ **Time** _____

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9 × 9 = 81 | 3 × 5 = 15 | 8 × 5 = 40 | 2 × 6 = 12 | 4 × 7 = 28 | 0 × 3 = 0 | 7 × 2 = 14 | 1 × 5 = 5 | 7 × 8 = 56 | 4 × 0 = 0 |
| 3 × 4 = 12 | 5 × 9 = 45 | 0 × 2 = 0 | 7 × 3 = 21 | 4 × 1 = 4 | 2 × 7 = 14 | 6 × 3 = 18 | 5 × 4 = 20 | 1 × 0 = 0 | 9 × 2 = 18 |
| 1 × 1 = 1 | 9 × 0 = 0 | 2 × 8 = 16 | 6 × 4 = 24 | 0 × 7 = 0 | 8 × 1 = 8 | 3 × 3 = 9 | 4 × 8 = 32 | 9 × 3 = 27 | 2 × 0 = 0 |
| 4 × 9 = 36 | 7 × 0 = 0 | 1 × 2 = 2 | 8 × 4 = 32 | 6 × 5 = 30 | 2 × 9 = 18 | 9 × 4 = 36 | 0 × 1 = 0 | 7 × 4 = 28 | 5 × 8 = 40 |
| 0 × 8 = 0 | 4 × 2 = 8 | 9 × 8 = 72 | 3 × 6 = 18 | 5 × 5 = 25 | 1 × 6 = 6 | 5 × 0 = 0 | 6 × 6 = 36 | 2 × 1 = 2 | 7 × 9 = 63 |
| 9 × 1 = 9 | 2 × 2 = 4 | 5 × 1 = 5 | 4 × 3 = 12 | 0 × 0 = 0 | 8 × 9 = 72 | 3 × 7 = 21 | 9 × 7 = 63 | 1 × 7 = 7 | 6 × 0 = 0 |
| 5 × 6 = 30 | 7 × 5 = 35 | 3 × 0 = 0 | 8 × 8 = 64 | 1 × 3 = 3 | 8 × 3 = 24 | 5 × 2 = 10 | 0 × 4 = 0 | 9 × 5 = 45 | 6 × 7 = 42 |
| 2 × 3 = 6 | 8 × 6 = 48 | 0 × 5 = 0 | 6 × 1 = 6 | 3 × 8 = 24 | 7 × 6 = 42 | 1 × 8 = 8 | 9 × 6 = 54 | 4 × 4 = 16 | 5 × 3 = 15 |
| 7 × 7 = 49 | 1 × 4 = 4 | 6 × 2 = 12 | 4 × 5 = 20 | 2 × 4 = 8 | 8 × 0 = 0 | 3 × 1 = 3 | 6 × 8 = 48 | 0 × 9 = 0 | 8 × 7 = 56 |
| 3 × 2 = 6 | 4 × 6 = 24 | 1 × 9 = 9 | 5 × 7 = 35 | 8 × 2 = 16 | 0 × 6 = 0 | 7 × 1 = 7 | 2 × 5 = 10 | 6 × 9 = 54 | 3 × 9 = 27 |


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**Test D—64 Multiplication Facts** **Name** _____ **Time** _____

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 × 6 = 30 | 4 × 3 = 12 | 9 × 8 = 72 | 7 × 5 = 35 | 2 × 9 = 18 | 8 × 4 = 32 | 9 × 3 = 27 | 6 × 9 = 54 |
| 9 × 4 = 36 | 2 × 5 = 10 | 7 × 6 = 42 | 4 × 8 = 32 | 7 × 9 = 63 | 5 × 4 = 20 | 3 × 2 = 6 | 9 × 7 = 63 |
| 3 × 7 = 21 | 8 × 5 = 40 | 6 × 2 = 12 | 5 × 5 = 25 | 3 × 5 = 15 | 2 × 4 = 8 | 7 × 7 = 49 | 8 × 9 = 72 |
| 6 × 4 = 24 | 2 × 8 = 16 | 4 × 4 = 16 | 8 × 2 = 16 | 3 × 9 = 27 | 6 × 6 = 36 | 9 × 9 = 81 | 5 × 3 = 15 |
| 4 × 6 = 24 | 8 × 8 = 64 | 5 × 7 = 35 | 6 × 3 = 18 | 2 × 2 = 4 | 7 × 4 = 28 | 3 × 8 = 24 | 8 × 6 = 48 |
| 2 × 6 = 12 | 5 × 9 = 45 | 3 × 3 = 9 | 9 × 2 = 18 | 6 × 7 = 42 | 4 × 5 = 20 | 7 × 2 = 14 | 9 × 6 = 54 |
| 5 × 2 = 10 | 7 × 8 = 56 | 2 × 3 = 6 | 6 × 8 = 48 | 4 × 7 = 28 | 9 × 5 = 45 | 3 × 6 = 18 | 8 × 7 = 56 |
| 3 × 4 = 12 | 7 × 3 = 21 | 5 × 8 = 40 | 4 × 2 = 8 | 8 × 3 = 24 | 2 × 7 = 14 | 6 × 5 = 30 | 4 × 9 = 36 |


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**Test E—90 Division Facts** **Name** _____ **Time** _____

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| $7\overline{)21}$ = 3 | $2\overline{)10}$ = 5 | $6\overline{)42}$ = 7 | $1\overline{)3}$ = 3 | $4\overline{)24}$ = 6 | $3\overline{)6}$ = 2 | $9\overline{)54}$ = 6 | $6\overline{)18}$ = 3 | $4\overline{)0}$ = 0 | $5\overline{)30}$ = 6 |
| $4\overline{)32}$ = 8 | $8\overline{)56}$ = 7 | $1\overline{)0}$ = 0 | $6\overline{)12}$ = 2 | $3\overline{)18}$ = 6 | $9\overline{)72}$ = 8 | $5\overline{)15}$ = 3 | $2\overline{)8}$ = 4 | $7\overline{)42}$ = 6 | $6\overline{)36}$ = 6 |
| $6\overline{)0}$ = 0 | $5\overline{)10}$ = 2 | $9\overline{)9}$ = 1 | $2\overline{)6}$ = 3 | $7\overline{)63}$ = 9 | $4\overline{)16}$ = 4 | $8\overline{)48}$ = 6 | $1\overline{)2}$ = 2 | $5\overline{)35}$ = 7 | $3\overline{)21}$ = 7 |
| $2\overline{)18}$ = 9 | $6\overline{)6}$ = 1 | $3\overline{)15}$ = 5 | $8\overline{)40}$ = 5 | $2\overline{)0}$ = 0 | $5\overline{)20}$ = 4 | $9\overline{)27}$ = 3 | $1\overline{)8}$ = 8 | $4\overline{)4}$ = 1 | $7\overline{)35}$ = 5 |
| $4\overline{)20}$ = 5 | $9\overline{)63}$ = 7 | $1\overline{)4}$ = 4 | $7\overline{)14}$ = 2 | $3\overline{)3}$ = 1 | $8\overline{)24}$ = 3 | $5\overline{)0}$ = 0 | $6\overline{)24}$ = 4 | $8\overline{)8}$ = 1 | $2\overline{)16}$ = 8 |
| $5\overline{)5}$ = 1 | $8\overline{)64}$ = 8 | $3\overline{)0}$ = 0 | $4\overline{)28}$ = 7 | $7\overline{)49}$ = 7 | $2\overline{)4}$ = 2 | $9\overline{)81}$ = 9 | $3\overline{)12}$ = 4 | $6\overline{)30}$ = 5 | $1\overline{)5}$ = 5 |
| $8\overline{)32}$ = 4 | $1\overline{)1}$ = 1 | $9\overline{)36}$ = 4 | $3\overline{)27}$ = 9 | $2\overline{)14}$ = 7 | $5\overline{)25}$ = 5 | $6\overline{)48}$ = 8 | $8\overline{)0}$ = 0 | $7\overline{)28}$ = 4 | $4\overline{)36}$ = 9 |
| $2\overline{)12}$ = 6 | $5\overline{)45}$ = 9 | $1\overline{)7}$ = 7 | $4\overline{)8}$ = 2 | $7\overline{)0}$ = 0 | $8\overline{)16}$ = 2 | $3\overline{)24}$ = 8 | $9\overline{)45}$ = 5 | $1\overline{)9}$ = 9 | $6\overline{)54}$ = 9 |
| $7\overline{)56}$ = 8 | $9\overline{)0}$ = 0 | $8\overline{)72}$ = 9 | $2\overline{)2}$ = 1 | $5\overline{)40}$ = 8 | $3\overline{)9}$ = 3 | $9\overline{)18}$ = 2 | $1\overline{)6}$ = 6 | $4\overline{)12}$ = 3 | $7\overline{)7}$ = 1 |


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**Test F—Simplify 50 Improper Fractions** Name _____ Time _____

| | | | | |
|---|---|---|---|---|
| $\frac{12}{5} = 2\frac{2}{5}$ | $\frac{7}{2} = 3\frac{1}{2}$ | $\frac{20}{3} = 6\frac{2}{3}$ | $\frac{5}{2} = 2\frac{1}{2}$ | $\frac{24}{12} = 2$ |
| $\frac{10}{2} = 5$ | $\frac{25}{6} = 4\frac{1}{6}$ | $\frac{5}{4} = 1\frac{1}{4}$ | $\frac{21}{8} = 2\frac{5}{8}$ | $\frac{6}{3} = 2$ |
| $\frac{10}{5} = 2$ | $\frac{21}{10} = 2\frac{1}{10}$ | $\frac{12}{12} = 1$ | $\frac{15}{3} = 5$ | $\frac{10}{3} = 3\frac{1}{3}$ |
| $\frac{16}{16} = 1$ | $\frac{5}{3} = 1\frac{2}{3}$ | $\frac{27}{10} = 2\frac{7}{10}$ | $\frac{3}{2} = 1\frac{1}{2}$ | $\frac{11}{8} = 1\frac{3}{8}$ |
| $\frac{36}{12} = 3$ | $\frac{11}{10} = 1\frac{1}{10}$ | $\frac{21}{16} = 1\frac{5}{16}$ | $\frac{4}{4} = 1$ | $\frac{25}{9} = 2\frac{7}{9}$ |
| $\frac{11}{6} = 1\frac{5}{6}$ | $\frac{8}{8} = 1$ | $\frac{20}{9} = 2\frac{2}{9}$ | $\frac{15}{2} = 7\frac{1}{2}$ | $\frac{4}{3} = 1\frac{1}{3}$ |
| $\frac{25}{8} = 3\frac{1}{8}$ | $\frac{15}{4} = 3\frac{3}{4}$ | $\frac{2}{2} = 1$ | $\frac{25}{12} = 2\frac{1}{12}$ | $\frac{32}{16} = 2$ |
| $\frac{8}{3} = 2\frac{2}{3}$ | $\frac{12}{4} = 3$ | $\frac{25}{16} = 1\frac{9}{16}$ | $\frac{8}{5} = 1\frac{3}{5}$ | $\frac{27}{8} = 3\frac{3}{8}$ |
| $\frac{33}{20} = 1\frac{13}{20}$ | $\frac{4}{2} = 2$ | $\frac{10}{9} = 1\frac{1}{9}$ | $\frac{24}{8} = 3$ | $\frac{3}{3} = 1$ |
| $\frac{9}{4} = 2\frac{1}{4}$ | $\frac{10}{10} = 1$ | $\frac{15}{8} = 1\frac{7}{8}$ | $\frac{16}{3} = 5\frac{1}{3}$ | $\frac{33}{10} = 3\frac{3}{10}$ |


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**Test G—Reduce 40 Fractions** **Name** _____ **Time** _____

| | | | | |
|---|---|---|---|---|
| $\frac{4}{20} = \frac{1}{5}$ | $\frac{2}{4} = \frac{1}{2}$ | $\frac{4}{12} = \frac{1}{3}$ | $\frac{6}{9} = \frac{2}{3}$ | $\frac{4}{8} = \frac{1}{2}$ |
| $\frac{4}{10} = \frac{2}{5}$ | $\frac{2}{16} = \frac{1}{8}$ | $\frac{10}{15} = \frac{2}{3}$ | $\frac{2}{8} = \frac{1}{4}$ | $\frac{10}{12} = \frac{5}{6}$ |
| $\frac{8}{12} = \frac{2}{3}$ | $\frac{2}{20} = \frac{1}{10}$ | $\frac{2}{6} = \frac{1}{3}$ | $\frac{6}{10} = \frac{3}{5}$ | $\frac{12}{24} = \frac{1}{2}$ |
| $\frac{14}{16} = \frac{7}{8}$ | $\frac{6}{12} = \frac{1}{2}$ | $\frac{10}{100} = \frac{1}{10}$ | $\frac{3}{15} = \frac{1}{5}$ | $\frac{6}{8} = \frac{3}{4}$ |
| $\frac{3}{6} = \frac{1}{2}$ | $\frac{10}{20} = \frac{1}{2}$ | $\frac{3}{12} = \frac{1}{4}$ | $\frac{3}{9} = \frac{1}{3}$ | $\frac{4}{16} = \frac{1}{4}$ |
| $\frac{8}{10} = \frac{4}{5}$ | $\frac{16}{32} = \frac{1}{2}$ | $\frac{4}{6} = \frac{2}{3}$ | $\frac{8}{16} = \frac{1}{2}$ | $\frac{5}{20} = \frac{1}{4}$ |
| $\frac{50}{100} = \frac{1}{2}$ | $\frac{2}{10} = \frac{1}{5}$ | $\frac{5}{15} = \frac{1}{3}$ | $\frac{9}{12} = \frac{3}{4}$ | $\frac{10}{16} = \frac{5}{8}$ |
| $\frac{2}{12} = \frac{1}{6}$ | $\frac{12}{16} = \frac{3}{4}$ | $\frac{7}{14} = \frac{1}{2}$ | $\frac{5}{10} = \frac{1}{2}$ | $\frac{4}{32} = \frac{1}{8}$ |


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**Test H—Simplify 40 Fractions** **Name** _____ **Time** _____

| | | | | |
|---|---|---|---|---|
| $\frac{12}{16} = \frac{3}{4}$ | $\frac{16}{24} = \frac{2}{3}$ | $\frac{20}{6} = 3\frac{1}{3}$ | $\frac{6}{21} = \frac{2}{7}$ | $\frac{14}{8} = 1\frac{3}{4}$ |
| $\frac{18}{24} = \frac{3}{4}$ | $\frac{15}{6} = 2\frac{1}{2}$ | $\frac{6}{8} = \frac{3}{4}$ | $\frac{8}{3} = 2\frac{2}{3}$ | $\frac{5}{10} = \frac{1}{2}$ |
| $\frac{25}{12} = 2\frac{1}{12}$ | $\frac{24}{9} = 2\frac{2}{3}$ | $\frac{16}{20} = \frac{4}{5}$ | $\frac{18}{8} = 2\frac{1}{4}$ | $\frac{15}{24} = \frac{5}{8}$ |
| $\frac{8}{6} = 1\frac{1}{3}$ | $\frac{9}{6} = 1\frac{1}{2}$ | $\frac{10}{4} = 2\frac{1}{2}$ | $\frac{25}{100} = \frac{1}{4}$ | $\frac{6}{4} = 1\frac{1}{2}$ |
| $\frac{8}{24} = \frac{1}{3}$ | $\frac{10}{8} = 1\frac{1}{4}$ | $\frac{20}{6} = 3\frac{1}{3}$ | $\frac{20}{16} = 1\frac{1}{4}$ | $\frac{15}{20} = \frac{3}{4}$ |
| $\frac{16}{16} = 1$ | $\frac{25}{10} = 2\frac{1}{2}$ | $\frac{21}{6} = 3\frac{1}{2}$ | $\frac{8}{12} = \frac{2}{3}$ | $\frac{12}{8} = 1\frac{1}{2}$ |
| $\frac{8}{12} = \frac{2}{3}$ | $\frac{12}{9} = 1\frac{1}{3}$ | $\frac{16}{32} = \frac{1}{2}$ | $\frac{20}{9} = 2\frac{2}{9}$ | $\frac{10}{3} = 3\frac{1}{3}$ |
| $\frac{20}{8} = 2\frac{1}{2}$ | $\frac{10}{6} = 1\frac{2}{3}$ | $\frac{12}{20} = \frac{3}{5}$ | $\frac{18}{12} = 1\frac{1}{2}$ | $\frac{12}{10} = 1\frac{1}{5}$ |


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**Test I—Write 24 Fractions as Decimals** **Name** _____ **Time** _____

| | | | |
|---|---|---|---|
| $\frac{1}{5} = 0.2$ | $\frac{3}{10} = 0.3$ | $\frac{1}{4} = 0.25$ | $\frac{1}{20} = 0.05$ |
| $\frac{1}{8} = 0.125$ | $\frac{1}{3} = 0.\overline{3}$ | $\frac{9}{10} = 0.9$ | $\frac{7}{8} = 0.875$ |
| $\frac{3}{5} = 0.6$ | $\frac{1}{6} = 0.1\overline{6}$ | $\frac{1}{2} = 0.5$ | $\frac{1}{100} = 0.01$ |
| $\frac{1}{50} = 0.02$ | $\frac{5}{8} = 0.625$ | $\frac{7}{10} = 0.7$ | $\frac{3}{4} = 0.75$ |
| $\frac{1}{25} = 0.04$ | $\frac{2}{3} = 0.\overline{6}$ | $\frac{2}{5} = 0.4$ | $\frac{5}{6} = 0.8\overline{3}$ |
| $\frac{3}{8} = 0.375$ | $\frac{4}{5} = 0.8$ | $\frac{1}{10} = 0.1$ | $\frac{1}{1000} = 0.001$ |


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**Test J—Write 30 Percents as Fractions** **Name** _____ **Time** _____

| | | | | |
|---|---|---|---|---|
| $1\% = \frac{1}{100}$ | $20\% = \frac{1}{5}$ | $55\% = \frac{11}{20}$ | $90\% = \frac{9}{10}$ | $75\% = \frac{3}{4}$ |
| $99\% = \frac{99}{100}$ | $5\% = \frac{1}{20}$ | $95\% = \frac{19}{20}$ | $80\% = \frac{4}{5}$ | $12\% = \frac{3}{25}$ |
| $70\% = \frac{7}{10}$ | $65\% = \frac{13}{20}$ | $50\% = \frac{1}{2}$ | $2\% = \frac{1}{50}$ | $48\% = \frac{12}{25}$ |
| $24\% = \frac{6}{25}$ | $25\% = \frac{1}{4}$ | $33\frac{1}{3}\% = \frac{1}{3}$ | $40\% = \frac{2}{5}$ | $15\% = \frac{3}{20}$ |
| $60\% = \frac{3}{5}$ | $30\% = \frac{3}{10}$ | $4\% = \frac{1}{25}$ | $35\% = \frac{7}{20}$ | $36\% = \frac{9}{25}$ |
| $45\% = \frac{9}{20}$ | $8\% = \frac{2}{25}$ | $10\% = \frac{1}{10}$ | $66\frac{2}{3}\% = \frac{2}{3}$ | $85\% = \frac{17}{20}$ |

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**Test K—25 Fraction-Decimal-Percent Equivalents Name _____ Time _____**

| Fraction | Decimal | Percent |
|---|---|---|
| $\frac{1}{100}$ | 0.01 | 1% |
| $\frac{1}{50}$ | 0.02 | 2% |
| $\frac{1}{4}$ | 0.25 | 25% |
| $\frac{1}{8}$ | 0.125 | 12.5% |
| $\frac{1}{20}$ | 0.05 | 5% |
| $\frac{1}{3}$ | $0.\overline{3}$ | $33.\overline{3}\%$ |
| $\frac{7}{10}$ | 0.7 | 70% |
| $\frac{2}{5}$ | 0.4 | 40% |
| $\frac{1}{6}$ | $0.1\overline{6}$ | $16.\overline{6}\%$ |
| $\frac{3}{8}$ | 0.375 | 37.5% |
| $\frac{1}{2}$ | 0.5 | 50% |
| $\frac{1}{10}$ | 0.1 | 10% |
| $\frac{1}{5}$ | 0.2 | 20% |
| $\frac{1}{1000}$ | 0.001 | 0.1% |
| $\frac{1}{12}$ | $0.08\overline{3}$ | $8.\overline{3}\%$ |
| $\frac{2}{3}$ | $0.\overline{6}$ | $66.\overline{6}\%$ |
| $\frac{5}{8}$ | 0.625 | 62.5% |
| $\frac{4}{5}$ | 0.8 | 80% |
| $\frac{5}{6}$ | $0.8\overline{3}$ | $83.\overline{3}\%$ |
| $\frac{3}{10}$ | 0.3 | 30% |
| $\frac{3}{4}$ | 0.75 | 75% |
| $\frac{7}{8}$ | 0.875 | 87.5% |
| $\frac{9}{10}$ | 0.9 | 90% |
| $\frac{3}{5}$ | 0.6 | 60% |
| $\frac{1}{25}$ | 0.04 | 4% |


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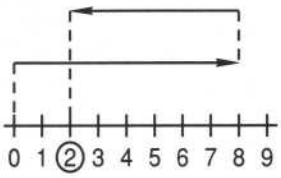
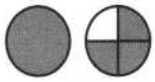
### TEST 1 FORM A

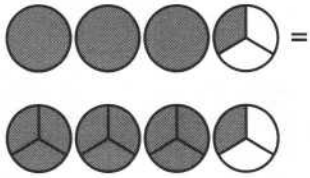
1. 10
2. 1, 2, 5, 10, 25, 50
3. $-7 < 2$
4. Twenty-one million, six hundred thousand, fifty
5. 1
6. 1, 2, 3, 4, 5, 6, 7, 10
7. >
8. 

9. 8,100,060
10. \$10.70
11. 15,160
12. \$9.25
13. 1348
14. 35
15. 23,440
16. 1056
17. 519
18. 5799
19. 2720
20. \$2.98

### TEST 2 FORM A

1. 227,000 visitors
2. \$101.82
3. 5480 participants
4. 3799 leaves
5. $-3, 0, \frac{1}{3}, 3$
6. 
7. (a) $\frac{7}{12}$ (b) $\frac{5}{12}$
8. forty-two million
9. (a) 1, 3, 7, 21
   (b) 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
   (c) 1, 3
10. $1 \times 3 < 1 + 3$
11. 2440
12. \$18.30
13. 26
14. $\frac{4}{5}$
15. $\frac{6}{11}$
16. $\frac{12}{35}$
17. 8256 r 5
18. \$65.20
19. $\frac{8}{125}$
20. (a) ray; $\overrightarrow{MC}$
    (b) line; $\overleftrightarrow{PM}$ or $\overleftrightarrow{MP}$
    (c) segment; $\overline{FH}$ or $\overline{HF}$

### TEST 3 FORM A

1. 4007
2. 1200 beach balls
3. 47
4. \$9.20
5. 26 years
6. 75¢ per cup; \$0.75 per cup
7. 

8. (a) 9 (b) 8
9. eight hundred sixty million, nine hundred thousand, three hundred thirty
10. (a) 1, 3, 7, 21
    (b) 1, 2, 3, 6, 7, 14, 21, 42
    (c) 21
11. $\overline{BC}, \overline{AB}, \overline{AC}$
12. $1\frac{6}{7}$
13. $1\frac{1}{11}$
14. $1\frac{1}{6}$
15. 2201 r 2
16. 221
17. 10,290
18. 39
19. 300
20. \$11.57

### TEST 4 FORM A

1. 1908
2. 160 bushels
3. $\frac{11}{12}$
4. 529 ducks
5. nine hundred fifty-three million
6. two hundred seventy-eight billion, three hundred four million, eleven thousand, fifty
7. $7 - 9 = -2$
8. 28 cm
9. (a) $3\frac{2}{3}$ (b) $\frac{3}{7}$
10. $2\frac{2}{3}$
11. (a) 27 (b) 16
12. right angle
13. 6768
14. \$1.37
15. A
16. $2\frac{1}{4}$
17. $\frac{2}{11}$
18. $\frac{1}{2}$
19. 7210 r 3
20. 312

### TEST 5 FORM A

1. 675 students
2. 128 envelopes
3. one billion, six hundred forty-eight million
4. 838 stamps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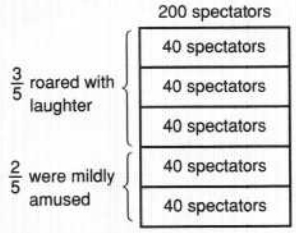
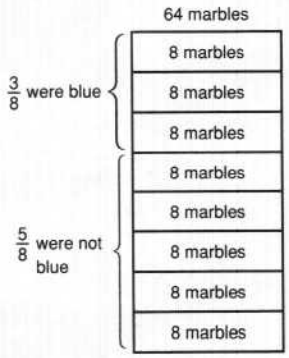
5. (a) 120 spectators
   (b) 80 spectators




6. $3\frac{2}{3}$
7. $\frac{14}{3}$
8. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$
9. (a) $\frac{10}{60}$ (b) $\frac{24}{60}$
10. side *AD*
11. 80 mm
12. 66
13. 83
14. 23
15. 13
16. $2\frac{1}{4}$
17. $\frac{1}{6}$
18. 12
19. $204
20. 375

## TEST 6 FORM A

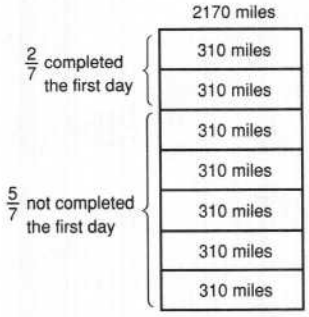
1. 24 books
2. 844 years
3. $10.70
4. 126 pages
5. (a) 24 marbles
   (b) 40 marbles




6. (a) $\frac{7}{100}$ (b) $\frac{93}{100}$
7. (a) $13\frac{1}{2}$ (b) $9\frac{1}{3}$
   (c) $\frac{2}{15}$
8. (a) $\frac{9}{4}$ (b) $\frac{4}{27}$ (c) $\frac{1}{9}$
9. (a) 30 (b) 21
10. 350
11. 73
12. 22
13. $5\frac{1}{6}$
14. $12\frac{2}{5}$
15. $3\frac{1}{4}$
16. 8
17. $\frac{5}{6}$
18. $10\frac{2}{3}$
19. $\frac{1}{3}$
20. $\frac{11}{12}$

## TEST 7 FORM A

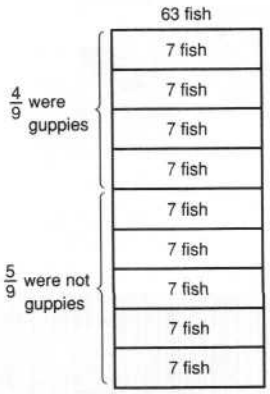
1. 74 inches
2. $3.44
3. 1915 miles
4. 157 girls
5. (a) 620 miles
   (b) 1550 miles




6. 9 inches
7. $\frac{8}{20}, \frac{15}{20}$
8. (a) 44,000 (b) 44,300
9. 1000
10. $4\frac{1}{2}$
11. <
12. 24
13. $5 \cdot 43$
14. 15
15. 12
16. 236
17. 49
18. $\frac{7}{12}$
19. $\frac{1}{12}$
20. $\frac{16}{25}$

## TEST 8 FORM A

1. $117.43
2. $2603
3. $0.65
4. 61 seconds
5. 20 cm
6. (a) 28 fish (b) 35 fish




7. 63
8. (a) 3849.42 (b) 3800
9. (a) $\frac{89}{100}$ (b) 0.89
10. one hundred and one hundred thirteen thousandths
11. 0.00085
12. 0.34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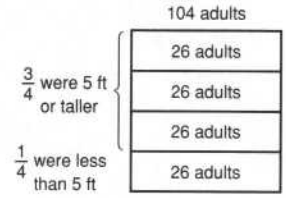
13. $10\frac{1}{12}$
14. 14.5
15. 5
16. 196
17. 17.09
18. 39.515
19. $1\frac{1}{10}$
20. $4\frac{3}{10}$

### TEST 9 FORM A

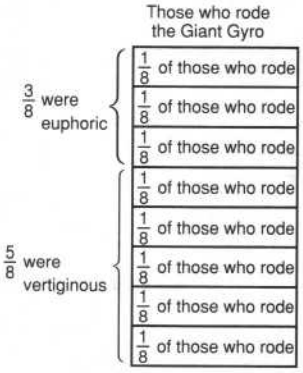
1. $\frac{4}{9}$
2. (a) 340 seconds
   (b) 85 seconds
3. 441 miles
4. (a) 26 adults
   (b) 78 adults




5. 310 mm
6. 30 mm
7. 4.5 cm
8. 0.910
9. seventeen and seven hundred three ten-thousandths
10. 4,250,860,000
11. 0.83
12. (a) 65.03 (b) $65\frac{3}{100}$
13. (a) $\angle c$ (b) $\angle e$
14. 0.0072
15. $8\frac{3}{14}$
16. $1\frac{1}{2}$
17. $13\frac{1}{2}$
18. $\frac{7}{9}$
19. 12
20. 0.82

### TEST 10 FORM A

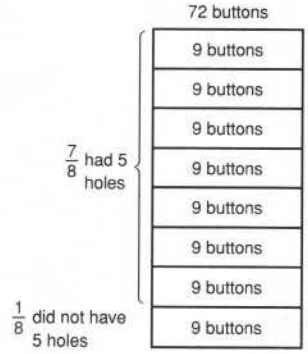
1. $\frac{2}{7}$
2. 91
3. 0.376
4. 2
5. $\frac{11}{35}$
6. (a) $\frac{5}{8}$ (b) $\frac{3}{5}$




7. 22 cm
8. $6\frac{1}{4}$
9. 1.8
10. 52.23232
11. 6.8
12. $0.4\overline{7}$
13. 2
14. 3.86
15. 0.909
16. $8\frac{17}{20}$
17. $2\frac{1}{12}$
18. 72
19. $\frac{3}{8}$
20. 0.05

### TEST 11 FORM A

1. 1867
2. \$2.25
3. $\frac{5}{12}$
4. \$108
5. three and ninety-one hundredths
6. (a) $\frac{1}{8}$ (b) 9 buttons




7. (a) 4 centimeters
   (b) $1\frac{5}{8}$ inches
8. $\frac{6}{25}$
9. $0.4\overline{36}$
10. $\frac{7}{8}$
11. 64 in.$^2$
12. 24
13. 2.8
14. 3.64
15. 37
16. 2
17. $6\frac{13}{24}$
18. $1\frac{3}{7}$
19. 245
20. 1.255

### TEST 12 FORM A

1. 347.3 miles
2. 48.823
3. 48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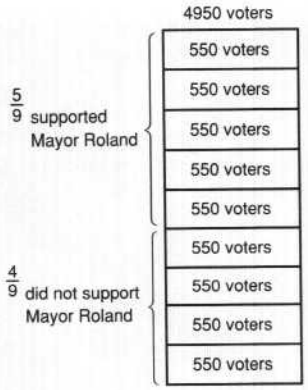
**4.** (a) 2200 voters (b) $\frac{5}{4}$




**5.** 70%

**6.** (a) $\frac{9}{50}$ (b) $1\frac{4}{5}$

**7.** (a) 375% (b) $33\frac{1}{3}\%$

**8.** 5 ft 10 in.

**9.** 30 yards

**10.** $66\frac{2}{7}$

**11.** 70 ft

**12.** 226 $ft^2$

**13.** 30

**14.** 1.74

**15.** $\frac{11}{12}$

**16.** 91

**17.** 3000

**18.** 135 miles

**19.** 5 yd 1 ft 1 in.

**20.** $1\frac{1}{12}$

### TEST 13 FORM A

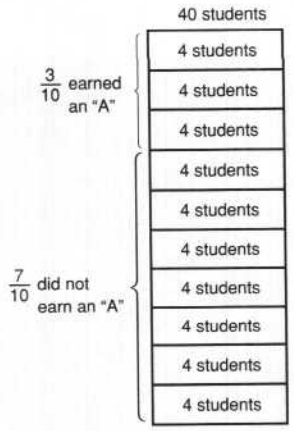
**1.** 45 skiffs

**2.** 128

**3.** \$0.09

**4.** 1 inch

**5.** (a) 12 students (b) 30%




**6.** $4 \times 10^{10}$

**7.** 18,600,000

**8.** 80 cm

**9.** $4\frac{1}{10}$

**10.** 3 in.

**11.** 245 $in.^2$

**12.** 78 in.

**13.** 4.36

**14.** 36

**15.** 97

**16.** 9 yd 2 ft 2 in.

**17.** $8\frac{17}{24}$

**18.** $73\frac{1}{2}$

**19.** 0.001

**20.** 300

### TEST 14 FORM A

**1.** \$0.31

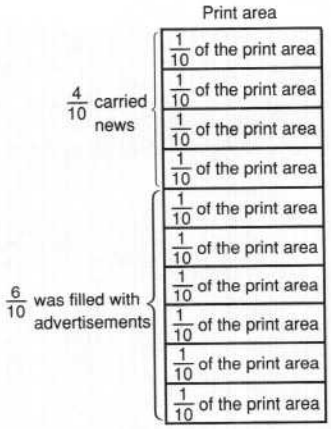
**2.** $1\frac{1}{3}$ cups

**3.** 53.4 seconds

**4.** 5 miles per hour

**5.** forty-nine million, six hundred eleven thousand

**6.** (a) 60% (b) $\frac{2}{3}$




**7.** $2.05 \times 10^{-3}$

**8.** 0.0000562

**9.** 5280 ft

**10.** 4%

**11.** 64 cm

**12.** 180 $cm^2$

**13.** 6

**14.** 0.8

**15.** 109

**16.** 10,016

**17.** 2 yd 1 in.

**18.** $6\frac{11}{18}$

**19.** $12\frac{1}{2}$

**20.** 0.001075

### TEST 15 FORM A

**1.** 11:05 a.m.

**2.** 60 miles per hour

**3.** 30 miles per gallon

**4.** 1690 fish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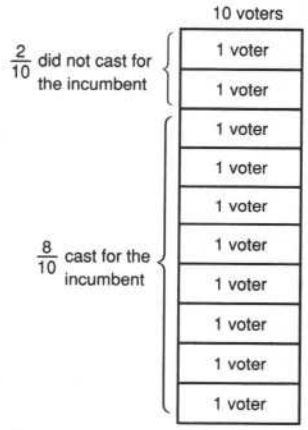
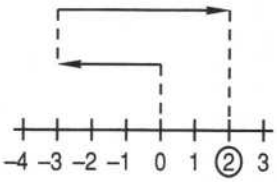
5. (a) 80% (b) $\frac{1}{5}$



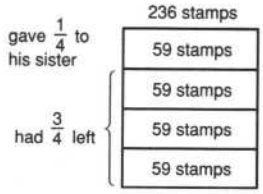

6. $3\frac{3}{5}$
7. $2 \times 10^{-6}$
8. 1,300,000
9. 324 in.
10.




11. (a) $\frac{3}{5}$ (b) 60%
(c) $1\frac{1}{5}$ (d) 1.2
12. 10
13. 13 in.
14. 8 in.$^2$
15. 15
16. $\frac{5}{6}$
17. 5
18. 3 qt 14 oz
19. $\frac{5}{6}$
20. 0.001

## TEST 16 FORM A

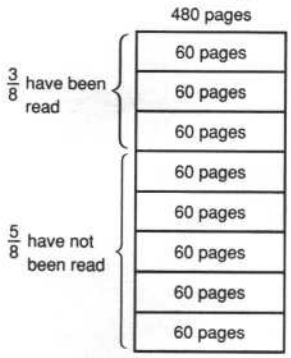
1. one hundred twenty-four ten-thousandths
2. \$5.50
3. (a) $\frac{4}{7}$ (b) $\frac{3}{4}$
4. 3
5. 24
6. (a) 25% (b) 177 stamps




7. $8 \times 10^{-5}$
8. 0.00024
9. =
10. 26
11. –7
12. (a) 0.125 (b) $12\frac{1}{2}$%
(c) $\frac{3}{25}$ (b) 12%
13. 21 cm$^2$
14. $\frac{1}{2}$
15. 18
16. 0.05
17. 175
18. $5\frac{1}{12}$
19. 14
20. 0.06

## TEST 17 FORM A

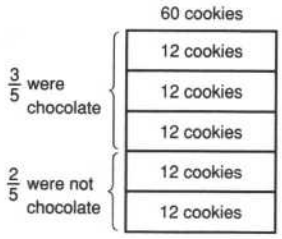
1. 6 minutes
2. 3
3. 588 students
4. 147 miles
5. (a) 300 pages (b) $\frac{3}{5}$




6. (a) 31.4 cm (b) 34π ft
7. 600 mm$^2$
8. 750 mm$^2$
9. $3.6 \times 10^9$
10. 400
11. 15
12. (a) $0.\overline{3}$ (b) $33\frac{1}{3}$%
(c) $\frac{8}{25}$ (d) 32%
13. –5
14. 20,000 pounds
15. 11
16. $1\frac{3}{8}$
17. 32
18. 295
19. 19
20. $1\frac{3}{22}$

## TEST 18 FORM A

1. 24 kilometers per hour
2. 98 cats
3. a little too large, because $\pi > 3$
4. (a) \$2.33 per pound
(b) \$23.30
5. 0.42
6. (a) 36 cookies (b) 40%




7. =
8. (a) 22π cm (b) 880 mm
9. (a) $1.1 \times 10^{-6}$
(b) $1.1 \times 10^8$
10. 2.52
11. 210
12. $12\frac{1}{2}$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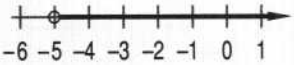
13. (a) $0.08\overline{3}$ (b) $8\frac{1}{3}\%$
(c) $\frac{9}{50}$ (d) 0.18
14. –12
15. 8 kg
16. 0.1
17. 6.6
18. $6\frac{2}{5}$
19. 45.15
20. $\frac{4}{21}$

### TEST 19 FORM A

1. 42 lifts
2. 4.8
3. 34 cm
4. 36 $cm^2$
5. 14
6. 250 girls
7. 6400 milligrams
8. (a) 60 games
(b) 40 games

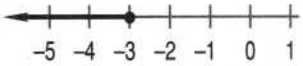
9. 90
10. 2010
11. (a) 18 (b) –54
(c) 3 (d) –9
12. 125 $cm^3$
13. (a) 132 m (b) $40\pi$ mm
14. (a) 0.2 (b) 20%
(c) $\frac{9}{20}$ (d) 45%
15. 76
16. 12
17. 1.4
18. $\frac{\$15}{hr}$
19. –6
20. $\frac{9}{10}$

### TEST 20 FORM A

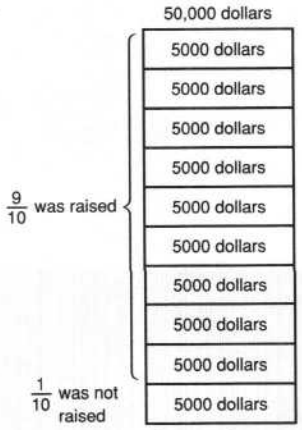
1. $\frac{\$3.80}{hr}$
2. 6
3. >
4. 15 articles of clothing
5. 960 customers
6. 47 m
7. 7 pints
8. 

9. 56 inches
10. (a) –80 (b) 60
(c) –300 (d) 960
11. (a) $0.8\overline{3}$ (b) $83\frac{1}{3}\%$
(c) $\frac{3}{5}$ (d) 60%
12. 1350
13. 14
14. $\frac{4}{75}$
15. 36 $m^2$
16. 80
17. 1.58
18. 5
19. $3\frac{1}{3}$
20. 51

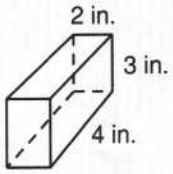
### TEST 21 FORM A

1. 6 games
2. (a) 77 (b) 75 (c) 60, 70, and 80 (d) 40
3. 99 dandelions
4. 470 milliliters
5. 

6. 24 miles
7. 180 children
8. (a) \$50,000 (b) 10%

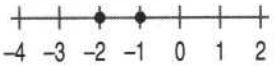



9. insufficient information
10. 24 $in.^3$




11. 113.04 $in.^2$
12. (a) 0.075 (b) $7\frac{1}{2}\%$
(c) $\frac{1}{30}$ (d) $0.0\overline{3}$
13. parallelogram; 49 cm
14. 140 $cm^2$
15. $3.25 \times 10^{15}$
16. 11
17. $\frac{34}{45}$
18. 12
19. $\frac{3}{20}$
20. –8

### TEST 22 FORM A

1. 8 bears
2. 3000 $cm^3$
3. 0.421
4. 9 $yd^2$
5. 



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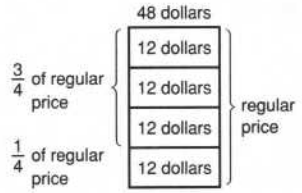
**6.** (a) \$48.00 (b) 75%




**7.** 55°

**8.** 55°

**9.** 88 in.

**10.** 400 $mm^2$

**11.** <

**12.** (a) $\frac{3}{50}$ (b) 6%

**13.** 2750 customers

**14.** 20%

**15.** 60°

**16.** $1 \times 10^{-7}$

**17.** 252

**18.** 6.57

**19.** 21

**20.** −5

### TEST 23 FORM A

**1.** 96

**2.** $\frac{7}{9}$

**3.** \$8

**4.** 300,000

**5.** 40¢ per pound

**6.** 75%

**7.** 100,000 $mm^2$

**8.** −13

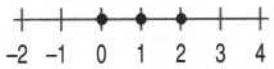
**9.** 150 $mm^2$

**10.** (a) \$5.76 (b) \$101.76

**11.** $2.8 \times 10^5$

**12.** (a) $3.\overline{3}$ (b) $333\frac{1}{3}\%$
(c) $\frac{1}{50}$ (d) 0.02

**13.**




**14.** 36

**15.** 5.85

**16.** 50

**17.** 800 milliliters

**18.** $2\frac{5}{6}$

**19.** 8

**20.** −26

### TEST 24 FORM A

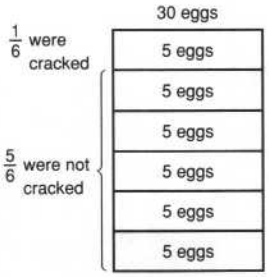
**1.** 85.5

**2.** $\frac{\$9}{\text{hr}}$

**3.** 140%

**4.** 16,000 $cm^2$

**5.** (a) 30 eggs (b) $83\frac{1}{3}\%$




**6.** 5

**7.** 9 $in.^2$

**8.** (a) $\frac{1}{3}$ (b) $\frac{2}{3}$

**9.** 72 $cm^3$

**10.** 314 $cm^2$

**11.** \$381.60

**12.** \$14.00

**13.** 60°

**14.** $3.2 \times 10^{-4}$

**15.** 5.5

**16.** 36

**17.** 100

**18.** 4 yd 5 in.

**19.** $1\frac{1}{2}$

**20.** −7

### TEST 25 FORM A

**1.** \$3.60

**2.** 80 kilometers per hour

**3.** 576 inches = 48 feet

**4.** \$175.00

**5.** \$45.00

**6.** \$3.12

**7.** (a) (4, −1) (b) 24 $units^2$

**8.** 10 inches

**9.** 12 $cm^3$

**10.** 282.6 $cm^3$

**11.** 9

**12.** 41°

**13.** $-3, \sqrt{3}, 3, 3^2$

**14.** 113.04 $in.^2$

**15.** B

**16.** 3

**17.** 1.6

**18.** 15

**19.** 6

**20.** 24

### TEST 26 FORM A

**1.** (a) 89 (b) 88.5
(c) 88 (d) 11

**2.** $\frac{1}{26}$

**3.** \$140.00

**4.** 75 marbles

**5.** \$78 per day

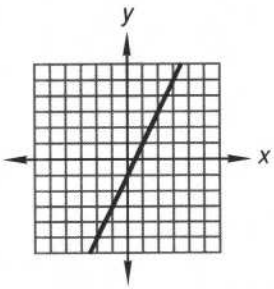
**6.** \$6.00

**7.** 3500

**8.** 6 $units^2$

**9.** 9.01

**10.** $y = 2x - 1$




**11.** 21.42 cm

**12.** 15,700 $cm^3$

**13.** 54 $in.^2$

**14.** 20°

**15.** 12

**16.** 36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**17.** 4

**18.** 80

**19.** $13\frac{3}{4}$

**20.** $-7$

### TEST 27 FORM A

**1.** \$14.70

**2.** \$64.75

**3.** \$30.00

**4.** $9.1 \times 10^9$

**5.** 0.94

**6.** $\frac{1}{8}$

**7.** 15%

**8.** \$480.00

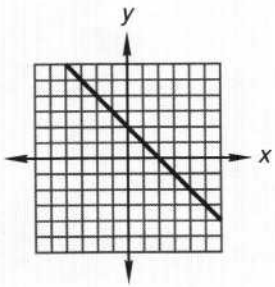
**9.** 6 units$^2$

**10.** 576 in.$^2$

**11.** 40 yards

**12.** 6000 m$^3$

**13.** $y = -x + 2$




**14.** 4

**15.** 60°

**16.** 25

**17.** 6

**18.** 640

**19.** $3\frac{1}{12}$

**20.** 2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### PRACTICE

a. 2
b. 4
c. 1860
d. 2588
e. 15,414
f. 30 r 5
g. 13

### PROBLEM SET A

1. 19
2. 17
3. 32
4. 3
5. addition, subtraction, multiplication, and division
6. 8
7. 125
8. 2715
9. 2368
10. 49
11. 1292
12. 375
13. 5688
14. 218
15. 30 r 17
16. 32
17. 2
18. 512
19. 23
20. 55
21. 309
22. 1084
23. 2257
24. 7300
25. 1200
26. 776
27. 40
28. 65
29. 20,000
30. 6591

### PRACTICE

a. (a) 5¢ (b) $0.05
b. 45¢ per cup; $0.45 per cup
c. $5.35
d. $1.53
e. $5.20
f. $4.80

### PROBLEM SET B

1. 3
2. (a) 4¢ (b) $0.04
3. 75¢ per cup; $0.75 per cup
4. addition, subtraction, multiplication, and division
5. 15
6. 3
7. $106.36
8. $5.21
9. $10.78
10. $3.75
11. $17.17
12. $4.37
13. 57
14. 207
15. 40 r 30
16. 27
17. 3
18. $37.50
19. 2795
20. 2639
21. $1.25
22. 56,000
23. $1.55
24. 4038
25. $73.99
26. $10.53
27. $6.25
28. $13.50
29. $32.40
30. 204

### PRACTICE

a. 19
b. 39
c. 12
d. 30
e. 17
f. 31

### PROBLEM SET 1

1. 2
2. 18
3. (a) 125¢ (b) $1.25
4. 14
5. multiplication
6. 6
7. 29
8. 69
9. 17
10. 173
11. 868
12. 16
13. 251 r 3
14. 42,000
15. 63
16. 12
17. 3
18. 60 r 4
19. $32.10
20. $11.77
21. 1833
22. $703.20
23. 158
24. 813
25. 639
26. 5104
27. 25,846
28. $19.20
29. $1.25
30. $15.36


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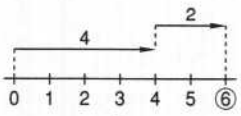
### PRACTICE

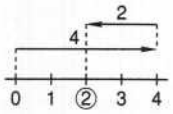
a. Refer to Lesson 2
b. −3, −1, 0, 2
c. $2 + 3 < 2 \times 3$
d. >
e. <
f. =

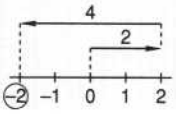
### PROBLEM SET 2

1. 5
2. $3 + 3 < 3 \cdot 3$
3. $0.08
4. −3, −1, 1, 3
5. 8 and 8
6. (a) < (b) >
7. negative numbers
8. 5
9. 65
10. 414
11. 56
12. 24
13. 344
14. 741
15. 78
16. 48,008
17. $1.26
18. 63,000
19. $7.66
20. $9.44
21. $104.13
22. 4305
23. 100
24. 22 r 28
25. 60
26. 6000
27. $4.03
28. $27.00
29. 80
30. $11.70

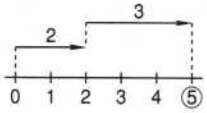
### PRACTICE

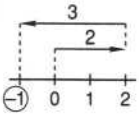
a.



b.



c.



### PROBLEM SET 3

1. 0
2. 18
3. positive numbers
4. 15¢ each; $0.15 each
5. $5 \cdot 2 > 5 + 2$
6. −2, −1, 0, 1
7. (a) = (b) <
8.


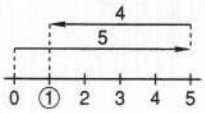

9.



10. 31
11. 73
12. 66
13. 777
14. 899
15. $3.50
16. 7
17. $56.56
18. $63.51
19. 1457
20. 210
21. 550
22. 24,000
23. 82
24. 27
25. $9.80
26. $1.10
27. 305 r 9
28. $112.50
29. 58
30. $17.28

### PRACTICE

a. 3
b. billions' place
c. thirty-six million, four hundred twenty-seven thousand, five hundred eighty
d. forty million, three hundred two thousand, ten
e. 25,206,040
f. 50,402,100,000

### PROBLEM SET 4

1. 3000
2. 101,000 > 1100
3. fifty million, five hundred seventy-four thousand, six
4. 2
5. 250,005,070
6. >; Negative twelve is greater than negative fifteen.
7. −7, −1, 0, 4, 5, 7
8.



9. 7
10. 32
11. 3867
12. 53
13. 2571
14. $6.30
15. 3600
16. 24
17. 97,203
18. 6247
19. 4733
20. $195.26
21. 36
22. 4
23. 20,000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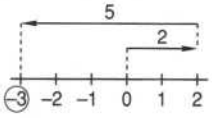
**24.** 50
**25.** 120
**26.** \$5.79
**27.** \$5.01
**28.** \$10.44
**29.** 405
**30.** \$124.70

### PRACTICE

**a.** 1, 5, 25
**b.** 1, 2, 3, 4, 6, 8, 12, 24
**c.** 1, 23
**d.** 1, 2, 3, 4, 5, 6, 7, 9, 10
**e.** 1, 2, 3, 4, 5, 6, 7, 10
**f.** 1, 2, 3, 4, 5, 6, 8, 9, 10
**g.** 1, 2, 3, 4, 6
**h.** 1, 2, 4, 5, 7, 8

## PROBLEM SET 5

**1.** 4
**2.** 1, 2, 3, 5, 6, 10, 15, 30
**3.** $-5 < 4$
**4.** 407,006,962
**5.** 1, 2, 3, 4, 5, 6, 10
**6.** >; Negative seven is greater than negative eleven.
**7.** 1, 2, 3, 4, 6, 8, 9
**8.**




**9.** six hundred four million, three thousand, five hundred four
**10.** \$5.40
**11.** 8350
**12.** 65
**13.** \$6.25
**14.** 1339
**15.** 22
**16.** 27,200
**17.** 35
**18.** 40,000
**19.** \$51.63
**20.** 96,300
**21.** \$2.25
**22.** 1001
**23.** 4807 r 8
**24.** 4262
**25.** \$22.97
**26.** 628
**27.** 2240
**28.** \$6.00
**29.** \$4.35
**30.** \$3.50

### PRACTICE

**a.** ray; $\overrightarrow{QP}$
**b.** segment; $\overline{XY}$ or $\overline{YX}$
**c.** line; $\overleftrightarrow{NM}$ or $\overleftrightarrow{MN}$

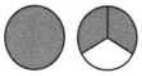
## PROBLEM SET 6

**1.** 12
**2.** ray
**3.** 1, 2, 5, 10, 25, 50
**4.** $2 - 5 = -3$
**5.** 90,500,035
**6.** 1, 2, 3, 4, 6, 7
**7.** −10, −7, −2, 0, 5, 8
**8.** line segment
**9.** ten million, two hundred three thousand, forty-five
**10.** 7
**11.** 34
**12.** \$82.46
**13.** 64
**14.** 1680
**15.** \$1.80
**16.** 530
**17.** 92,459
**18.** 18,088
**19.** 506
**20.** \$7.55
**21.** 2113
**22.** 200
**23.** 2
**24.** 80,000
**25.** \$1.70
**26.** 280
**27.** \$47.50
**28.** 22
**29.** \$98.01
**30.** $\overline{XY}$, $\overline{YZ}$, $\overline{XZ}$

### PRACTICE

**a.** $\frac{2}{5}$
**b.** $\frac{3}{5}$
**c.** seven twelfths
**d.** three and one half
**e.** six and two thirds
**f.**

**g.**



**h.**

**i.** $4\frac{2}{3}$
**j.** $13\frac{1}{4}$

## PROBLEM SET 7

**1.** $1\frac{3}{4} > 1\frac{3}{5}$
**2.** 9,000,000,042
**3.** 20
**4.** (a) 1, 3, 13, 39 (b) 1, 2, 3, 4, 5, 6, 7, 8
**5.** $3\frac{4}{5}$
**6.** (a) = (b) >
**7.** thirty-two billion, five hundred million, eighty-nine
**8.** (a) $\frac{3}{8}$ (b) $\frac{5}{8}$
**9.**

**10.** denominator
**11.** \$7.05
**12.** \$34.52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13. \$7.50
14. 4580
15. 1781
16. 21
17. 200,000
18. \$1.21
19. 78
20. 4743
21. 120
22. 1000
23. \$1.50
24. 989
25. 211
26. 449
27. \$6.00
28. 576
29. \$23.70
30. $\overline{QR}$, $\overline{RS}$, $\overline{QS}$

**PRACTICE**

a. $\frac{7}{9}$
b. $\frac{1}{5}$
c. $\frac{9}{40}$
d. 0
e. $\frac{8}{21}$
f. $\frac{9}{10}$

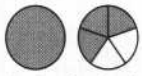
## PROBLEM SET 8

1. 1
2. 45¢ per pound; \$0.45 per pound
3. (a) >; One half is greater than one fourth.
   (b) >; Negative two is greater than negative four.
4. 475,000,942,010
5. four hundred six billion, twelve thousand, five
6. (a) $\frac{5}{9}$ (b) $\frac{4}{9}$
7. segment
8. $5\frac{3}{4}$
9. (a) 1, 2, 3, 6, 9, 18
   (b) 1, 2, 3, 4, 6, 8, 12, 24
   (c) 1, 2, 3, 6
10. 2158
11. 115,000
12. 15
13. \$14.40
14. \$2.50
15. \$110.50
16. $\frac{8}{15}$
17. $\frac{7}{8}$
18. 59
19. $\frac{3}{16}$
20. 5700
21. \$119.50
22. 1
23. \$10.51
24. 47,346
25. 106
26. \$0.45
27. \$5.04
28. 210,000
29. $\frac{8}{45}$
30. $\frac{7}{9}$

**PRACTICE**

a. 112 pounds
b. 184 turns
c. 136 kids

## PROBLEM SET 9

1. 285 pounds
2. 4027 leaves
3. 15
4. (a) $\frac{3}{10}$ (b) $\frac{7}{10}$
5. two billion, four hundred fifty thousand
6. (a) < (b) >
7. $9\frac{5}{6}$
8. 
9. 1, 2, 3, 4, 5, 6, 7
10. 23,775
11. 22
12. 63
13. 37,600
14. \$1.25
15. \$25.00
16. \$37.50
17. $\frac{15}{28}$
18. 0
19. $\frac{19}{20}$
20. 1379
21. 3650
22. \$17.20
23. 240,000
24. 48
25. \$4.18
26. 4809 r 7
27. \$3.20
28. $\frac{9}{20}$
29. $\frac{8}{27}$
30. (a) ray; $\overrightarrow{MC}$
    (b) line; $\overleftrightarrow{PM}$ or $\overleftrightarrow{MP}$
    (c) segment; $\overline{FH}$ or $\overline{HF}$

**PRACTICE**

a. 128
b. 200

## PROBLEM SET 10

1. 115,000 visitors
2. \$110.50
3. 4580 runners
4. (a) $\frac{7}{8}$ (b) $\frac{1}{8}$
5. $-2, 0, \frac{1}{2}, 1$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6. four hundred seven million, seventy-five
7. $1 \cdot 2 < 1 + 2$
8. eleven million
9. (a) 1, 2, 4, 8, 16
   (b) 1, 2, 3, 4, 6, 8, 12, 24
   (c) 1, 2, 4, 8
10. 2660
11. 440
12. 20
13. $249
14. $16.50
15. $5.50
16. $\frac{8}{9}$
17. $\frac{1}{25}$
18. $\frac{10}{21}$
19. 0
20. 1900
21. 35,779
22. 35,429
23. 9720
24. 25
25. $18.07
26. $44.70
27. $4.02
28. 9200 r 4
29. $\frac{5}{54}$
30. $\frac{7}{8}$

### PRACTICE

a. 975,000,000
b. 576 years
c. 1917

## PROBLEM SET 11

1. some went away; 37,600 fans
2. some and some more; 13
3. time (later-earlier-difference); 149 years
4. larger-smaller-difference; 27,400 fewer fans
5.
6. one hundred billion, forty-two
7. 977,000
8. (a) = (b) >
9. $\overline{PQ}, \overline{QR}, \overline{PR}$
10. (a) $\frac{3}{4}$ (b) $\frac{1}{4}$
11. 1, 2, 4, 5, 10, 20, 25, 50, 100
12. 42
13. 6315
14. 6
15. 2836
16. $3.47
17. 60
18. 7803
19. 840,842
20. 5032
21. 0
22. $\frac{4}{9}$
23. $\frac{1}{24}$
24. $2.48
25. 175
26. 4760 r 7
27. $56.08
28. $19.11
29. 1,620,000
30. $18.00

### PRACTICE

a. $4.32
b. 15 rows
c. 175 push-ups

## PROBLEM SET 12

1. larger-smaller-difference; 7803
2. some went away; 43 night crawlers
3. time (later-earlier-difference); 1882
4. equal groups; 900 beach balls
5. 27
6. 390,507,000,042
7. 10 units
8. one hundred four million, thirty-two
9. (a) line; $\overleftrightarrow{BR}$ or $\overleftrightarrow{RB}$
   (b) segment; $\overline{TV}$ or $\overline{VT}$
   (c) ray; $\overrightarrow{MW}$
10. (a) 1, 2, 3, 4, 6, 8, 12, 24
    (b) 1, 2, 3, 4 ,6, 9, 12, 18, 36
    (c) 1, 2, 3, 4, 6, 12
11. $A = \frac{6}{7}$; $B = 1\frac{4}{7}$
12. 1515
13. 569
14. 50
15. $23.55
16. 150
17. 6
18. $5.41
19. $\frac{1}{5}$
20. $\frac{3}{5}$
21. $\frac{5}{24}$
22. 5035
23. $0.63
24. 24
25. 15,000
26. $12.75
27. 100
28. 1
29. 27,000
30. 4

### PRACTICE

a. 604 lights
b. $\frac{3}{5}$


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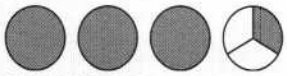
### PROBLEM SET 13

1. some and some more; 77 grams of cereal
2. part-part-whole; $\frac{3}{10}$
3. time (later-earlier-difference); 13 years
4. equal groups; 15 truckloads
5. 60¢ per quart; \$0.60 per quart
6. 
7. 407,042,603
8. thirty-seven million, sixty thousand, forty-three
9. (a) 1, 2, 4, 5, 8, 10, 20, 40
   (b) 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
   (c) 8
10. $\overline{XY}$, $\overline{WX}$, $\overline{WY}$
11. (a) $\frac{4}{11}$ (b) $\frac{7}{11}$
12. 705
13. 1030
14. 6
15. 4395
16. \$16.53
17. 202
18. $\frac{4}{7}$
19. 0
20. $\frac{8}{27}$
21. \$5.46
22. 3742
23. 45
24. 10,730
25. 8021 r 6
26. 910
27. 890
28. \$19.50
29. 120
30. 50

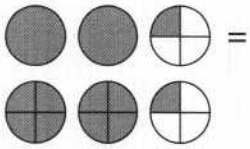
### PRACTICE

a. $\frac{10}{10}$

b. $2\frac{2}{5}$

c. 2

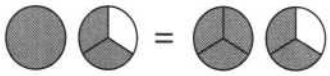
d. $1\frac{5}{7}$

e. 

f. 1

g. $1\frac{5}{9}$

### PROBLEM SET 14

1. part-part-whole; 360
2. equal groups; 25 trips
3. time (later-earlier-difference); 1420
4. some and some more; \$7.10
5. 142,075,302
6. (a) = (b) >
7. 6 units
8. 1, 2, 3, 4, 5, 6, 7
9. 
10. (a) $\frac{5}{12}$ (b) $\frac{7}{12}$
11. $\frac{12}{12}$
12. (a) $4\frac{1}{2}$ (b) 3 (c) $2\frac{1}{4}$
13. 83
14. 200
15. 7
16. 14
17. 1
18. $1\frac{1}{9}$
19. $2\frac{2}{9}$
20. 4041
21. \$2.26
22. 60
23. 18,000
24. \$2.25
25. 225
26. 200
27. \$2.40
28. 1
29. $1\frac{1}{2}$
30. $3\frac{3}{4}$

### PRACTICE

a. $\frac{4}{14}, \frac{10}{35}, \frac{16}{56}$

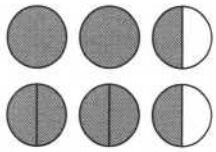
b. $\frac{15}{20}, \frac{21}{28}, \frac{9}{12}$

c. $\frac{12}{16}$

d. 16

e. 24

### PROBLEM SET 15

1. some and some more; 68 miles
2. equal groups; 441 pounds of strawberries
3. larger-smaller-difference; fifteen million, two hundred thousand
4. part-part-whole; 138 boys
5. $-2, 0, \frac{1}{2}, 1, \frac{4}{3}$
6. 
7. $\frac{4}{10}, \frac{6}{15}, \frac{8}{20}$
8. $\frac{100}{100}$
9. (a) $\frac{5}{16}$ (b) $\frac{11}{16}$
10. (a) 4 (b) 3 (c) 10
11. 1, 2, 4, 5, 10, 20, 25, 50, 100
12. $6\frac{7}{8}$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13. (a) $1\frac{4}{5}$ (b) 2 (c) $2\frac{1}{5}$
14. 250
15. 468
16. 20
17. $1.51
18. 44
19. 1
20. $1\frac{7}{8}$
21. $23.22
22. 26,411
23. 115
24. 14,000
25. 1800 r 4
26. 625
27. 91
28. 91
29. 5
30. $6\frac{1}{4}$
31. 0

### PRACTICE

a. $\frac{1}{2}$
b. $\frac{4}{5}$
c. $\frac{2}{3}$
d. $\frac{3}{4}$
e. $4\frac{1}{2}$
f. $6\frac{3}{4}$
g. $8\frac{2}{3}$
h. $12\frac{8}{15}$
i. $\frac{5}{6}$
j. $2\frac{3}{5}$
k. $\frac{5}{9}$

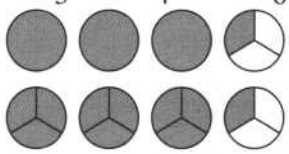
### PROBLEM SET 16

1. time; 1914
2. some and some more; 121 geese
3. part-part-whole; $\frac{7}{12}$
4. equal groups; 150 bushels
5. twenty-nine million, seven hundred five thousand, sixty
6. $3 \cdot 5 > 3 + 5$
7. 1, 2, 3, 4, 5, 6, 7
8. (a) $\frac{3}{4}$ (b) $2\frac{3}{5}$
9. $\frac{6}{9}, \frac{10}{15}, \frac{12}{18}$
10. (a) $\frac{12}{20}$ (b) $\frac{10}{20}$ (c) $\frac{15}{20}$
11. (a) $\overleftrightarrow{QS}$ (b) $\overrightarrow{RT}, \overrightarrow{RQ}, \overrightarrow{RS}$
12. (a) $3\frac{2}{3}$ (b) 4 (c) $4\frac{1}{3}$
13. 550
14. 1023
15. 12
16. $2.97
17. $1\frac{4}{5}$
18. $\frac{1}{4}$
19. 1
20. 1225
21. 387
22. $20.20
23. $3.25
24. $455.00
25. 6004 r 1
26. 143
27. 143
28. 3
29. $\frac{5}{6}$
30. $\frac{5}{9}$

### PRACTICE

a. U.S. Customary System (feet, yard, mile); metric system (centimeter, meter, kilometer)
b. 2000 mm
c. 15 ft
d. 5 m
e. 9 in.
f. $2\frac{3}{4}$ in.

### PROBLEM SET 17

1. part-part-whole; 83 students
2. equal groups; 250 cartons
3. some went away; 297 ducks
4. larger-smaller-difference; 287,392
5. (a) = (b) >
6. $3\frac{1}{4}$
7. (a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $6\frac{5}{6}$
8.  =
9. (a) $\frac{20}{24}$ (b) $\frac{9}{24}$ (c) $\frac{6}{24}$
10. (a) $\frac{2}{6}$ or $\frac{1}{3}$ (b) $\frac{4}{6}$ or $\frac{2}{3}$
11. 1, 2, 3, 5, 6, 7, 9
12. (a) $2\frac{2}{7}$ (b) 2 (c) $1\frac{7}{9}$
13. 1863
14. 63
15. 2
16. $6.10
17. 42
18. $\frac{1}{2}$
19. $1\frac{1}{10}$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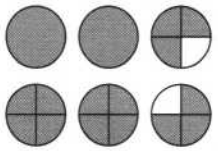
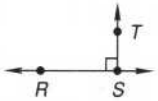
20. $\frac{1}{4}$
21. 11,153
22. $37.35
23. 625
24. 14,784
25. 7777 r 7
26. 2025
27. 77
28. 77
29. $\frac{2}{3}$
30. 2

### PRACTICE

a.
b.
c.
d.
e.
f.

## PROBLEM SET 18

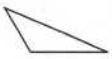
1. some and some more; 7510 soldiers
2. part-part-whole; $\frac{17}{20}$
3. equal groups; 14 students
4. time; 128 years
5. (c) $\frac{5}{3}$
6. (a) $\overleftrightarrow{QR}$ (b) $\overleftrightarrow{RT}$
7. (a) $\frac{3}{4}$ (b) $3\frac{2}{3}$ (c) $5\frac{3}{5}$
8.  =
9. (a) 4 (b) 6 (c) 15
10.
11. 1, 2, 5, 10
12. 

13. $3.75
14. 3731
15. 11
16. $18.70
17. 999
18. $\frac{2}{3}$
19. $\frac{1}{3}$
20. 256
21. $5.08
22. $2.50
23. 240,000
24. 3533 r 8
25. 3025
26. 182
27. 800
28. $1\frac{4}{5}$
29. $\frac{2}{3}$
30. 3

### PRACTICE

a. octagon
b. square
c. acute angle

## PROBLEM SET 19

1. equal groups; 550 miles
2. some and some more; 973 miles
3. part-part-whole; 1023 meters
4. larger-smaller-difference; nine hundred ninety million
5. $-1, 0, \frac{3}{4}, 1, \frac{5}{3}$
6. side *AD*
7. (a) 30 mm (b) 5 cm
8. (a) $\frac{1}{2}$ (b) $\frac{3}{5}$ (c) $6\frac{3}{4}$
9. (a) $\frac{24}{30}$ (b) $\frac{20}{30}$ (c) $\frac{5}{30}$
10. 3
11. (a)  (b) acute
12. (a) $\frac{2}{8}$ or $\frac{1}{4}$ (b) $\frac{6}{8}$ or $\frac{3}{4}$
13. 9100
14. 5814
15. 8
16. $9.30
17. 40
18. $\frac{2}{5}$
19. $\frac{3}{4}$
20. $18.84
21. 9424
22. 45
23. 60,000
24. 1914 r 14
25. 441
26. 143
27. 2700
28. 1
29. $\frac{1}{2}$
30. $\frac{1}{3}$

### PRACTICE

a. 13 in.
b. 25 cm
c. 96 in.
d. 25

## PROBLEM SET 20

1. part-part-whole; $\frac{7}{8}$
2. some went away; 200 people
3. equal groups; 504 slices of pie
4. 87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5. eighteen million, seven hundred twenty thousand, five hundred one
6. $3 - 7 = -4$
7. 8 feet
8. 28 cm
9. (a) $3\frac{2}{3}$ (b) $\frac{5}{8}$
10. (a) 27 (b) 16
11.
12. octagon
13. right angle
14. 7451
15. $1.37
16. 8
17. 23
18. 353
19. 2
20. $\frac{1}{4}$
21. $\frac{2}{7}$
22. $5.35
23. 12,968
24. 200
25. $37.92
26. 2500
27. 9100
28. 275
29. $1\frac{4}{7}$
30. 0

### PRACTICE

a. 32
b. 41
c. 77
d. 21

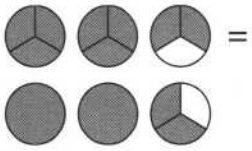
## PROBLEM SET 21

1. equal groups; 157 students
2. some went away; 82 parrots
3. part-part-whole; 375 fish
4. some and some more; 70,022
5. 20¢ each; $0.20 each
6. $-2, -\frac{1}{2}, 0, \frac{1}{3}, 1$
7. (b) $\frac{1}{3}$
8. sides *DC* and *AB*
9. (a) $2\frac{1}{2}$ (b) $2\frac{2}{3}$
10. (a) $\frac{8}{36}$ (b) $\frac{27}{36}$
11. (a) 1, 2, 5, 10 (b) 1, 7 (c) 1
12. 6 inches
13. 18
14. 26
15. 12
16. 36
17. 44
18. 15
19. $\frac{3}{5}$
20. $1\frac{2}{3}$
21. $2\frac{1}{12}$
22. $52.04
23. 586
24. 476
25. 705
26. 9000
27. 230 r 61
28. 208 r 18
29. 0
30. 1

### PRACTICE

a. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
b. composite number
c. $3 \cdot 3 \cdot 3$
d. $2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$

## PROBLEM SET 22

1. part-part-whole; $\frac{1}{3}$
2. equal groups; 49 quills
3. larger-smaller-difference; one billlion, nine hundred seventy-nine million
4. some and some more; $15,113
5. (a) $3\frac{4}{7}$ (b) $2\frac{2}{5}$
6. 53, 59
7. (a) $2 \cdot 5 \cdot 5$
   (b) $2 \cdot 2 \cdot 3 \cdot 5$
   (c) $2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$
8. *C*
9. (a) 10 (b) 9 (c) 2
10. 
11.
12. 12 cm
13. 20 mm
14. 27
15. 66
16. 4
17. 12
18. 23
19. 34
20. 17
21. 2
22. $\frac{8}{27}$
23. 304
24. $73.82
25. $0.48
26. 24
27. 30,000
28. 0
29. 0
30. 2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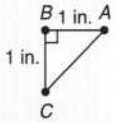
### PRACTICE

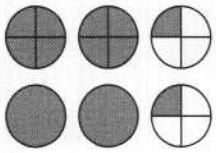
a. $2\frac{1}{2}$

b. $4\frac{1}{2}$

c. $3\frac{1}{3}$

### PROBLEM SET 23

1. some went away; 190 villagers
2. part-part-whole; 315 watermelons
3. equal groups; 28 students
4. larger-smaller-difference; nine million, sixty thousand
5. (a) $2 \cdot 2 \cdot 2 \cdot 2$ (b) $3 \cdot 5 \cdot 5 \cdot 7$
6. (a) $1\frac{1}{2}$ (b) $2\frac{1}{3}$
7. (a) > (b) =
8. (a) $\frac{3}{5}$ (b) $\frac{2}{5}$
9. (a) $\frac{14}{24}$ (b) $\frac{9}{24}$
10. 4 cm
11. 

12. 23, 29
13.  =
14. 82
15. 103
16. 14
17. 90
18. 18
19. 7
20. $1\frac{1}{4}$
21. $1\frac{1}{3}$
22. $\frac{1}{3}$
23. $51.19
24. 20,418
25. 63,732
26. 94
27. 2,000,000
28. 600
29. 1
30. $\frac{1}{2}$

### PRACTICE

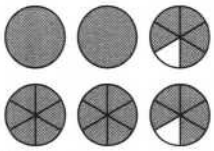
a. $\frac{23}{6}$

b. $\frac{7}{1}$

c. $\frac{19}{4}$

d. $\frac{10}{1}$

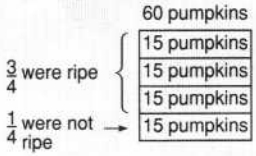
### PROBLEM SET 24

1. equal groups; 75 fish
2. time (later-earlier-difference); 426 years
3. equal groups; $33
4. part-part-whole; $\frac{3}{5}$
5. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$
6. 35
7. (a) $4\frac{1}{4}$ (b) $2\frac{2}{5}$
8. (a) $\frac{1}{3}$ (b) $\frac{2}{3}$
9. (a) 12 (b) 15 (c) 3
10.
11. (a) right (b) acute (c) side *AB*
12. (a) $\frac{5}{2}$ (b) $\frac{5}{1}$ (c) $\frac{26}{3}$
13.  =
14. 588
15. 122
16. 33
17. 270
18. 4
19. 20
20. $2\frac{1}{3}$
21. $2\frac{1}{12}$
22. $\frac{1}{2}$
23. $\frac{1}{2}$
24. 2999
25. $2.51
26. 636,740
27. 151
28. 625
29. 1000
30. 1

### PRACTICE

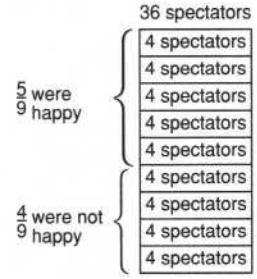
a. 45 pumpkins

b. 15 pumpkins




### PROBLEM SET 25

1. some and some more; 81 students
2. equal groups; 27 students
3. some went away; 47,000
4. larger-smaller-difference; 7613
5. (a) 20 spectators (b) 16 spectators




6. $2\frac{3}{5} < 2\frac{3}{4}$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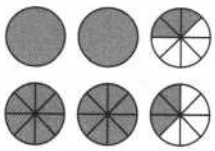
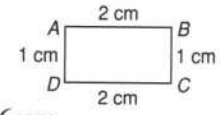
7. (a) $\frac{2}{5}$ (b) $\frac{3}{5}$
8. 2 meters
9. (a) $18\frac{1}{3}$ (b) $16\frac{1}{2}$
10. (a) $\frac{20}{3}$ (b) $\frac{12}{1}$
11.  =
12. (a) 

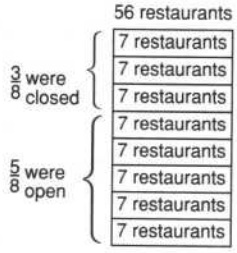
(b) 6 cm
13. (a) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
(b) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$
14. (a) $\frac{50}{60}$ (b) $\frac{36}{60}$ (c) $\frac{35}{60}$
15. $-2, -\frac{2}{3}, 0, 1, \frac{3}{2}$
16. 279
17. 810
18. 7
19. 118
20. 144
21. 13
22. $2\frac{1}{2}$
23. 25
24. $\frac{2}{3}$
25. \$234.88
26. 27,239
27. \$600
28. \$1.80
29. 729
30. 10,000

### PRACTICE

a. 5
b. $7\frac{1}{3}$
c. $10\frac{1}{3}$
d. $6\frac{2}{3}$
e. $4\frac{2}{3}$
f. $4\frac{2}{5}$

### PROBLEM SET 26

1. equal groups; 648 exposures
2. larger-smaller-difference; forty-nine million, seven hundred fifty thousand
3. some and some more; 835 people
4. equal groups; 89¢ per pound
5. (a) 21 restaurants
(b) 35 restaurants




6. 10
7. 115 yards
8. negative numbers
9. 2500
10. (a) = (b) <
11. (a) $4\frac{4}{5}$ (b) $18\frac{1}{3}$
12. (a) $\frac{9}{4}$ (b) $\frac{18}{5}$
13. (a) 30 (b) 16 (c) 3
14. (a) $2 \cdot 3 \cdot 7$
(b) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$
15. (a) acute (b) right
(c) obtuse (d) $\overrightarrow{DC}$
16. 15
17. 59
18. 9
19. 79
20. 5
21. $5\frac{3}{4}$
22. $5\frac{1}{2}$
23. $1\frac{2}{3}$
24. $3\frac{2}{3}$
25. 11,598
26. \$8.26
27. \$67.64
28. 640
29. $\frac{2}{3}$
30. $\frac{1}{2}$

### PRACTICE

a. $\frac{5}{3}$
b. $\frac{7}{8}$
c. $\frac{1}{5}$
d. $\frac{3}{7}$
e. $\frac{4}{15}$
f. $1\frac{3}{5}$
g. 6
h. $\frac{3}{10}$

### PROBLEM SET 27

1. some and some more; 432 people
2. equal groups; 108 people
3. time (later-earlier-difference); 506 years
4. some went away; \$26.75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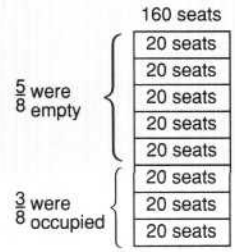
**5.** (a) 100 seats
(b) 60 seats




**6.** 1000

**7.** 70 years

**8.** (a) $\frac{1}{4}$ (b) $\frac{3}{4}$

**9.** (a) $4\frac{1}{6}$ (b) $5\frac{1}{3}$ (c) $6\frac{1}{4}$

**10.** (a) $\frac{15}{4}$ (b) $\frac{5}{3}$ (c) $\frac{6}{1}$

**11.** (a) $\frac{36}{45}$ (b) $\frac{10}{45}$

**12.** $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 5$

**13.** (a) $\frac{8}{5}$ (b) $\frac{1}{4}$ (c) $\frac{3}{7}$

**14.** (a) $\frac{5}{2}$ (b) $\frac{2}{3}$

**15.** 90 mm

**16.** 160

**17.** 375

**18.** 4

**19.** 18

**20.** $6\frac{3}{4}$

**21.** 7

**22.** $5\frac{3}{4}$

**23.** $3\frac{1}{6}$

**24.** $1\frac{3}{5}$

**25.** \$276.29

**26.** 1105

**27.** 34,737

**28.** \$514.02

**29.** $1\frac{2}{5}$

**30.** 2

### PRACTICE

**a.** $\frac{1}{3}$

**b.** $\frac{5}{18}$

**c.** $\frac{3}{16}$

**d.** $\frac{1}{5}$

**e.** $\frac{5}{7}$

## PROBLEM SET 28

**1.** larger-smaller-difference; 131 miles

**2.** equal groups; 360 microprocessors

**3.** 222 pages

**4.** 88 pages

**5.** 20 steps

**6.** 250

**7.** (a) $\frac{1}{3}$ (b) $\frac{3}{8}$

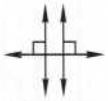
**8.** (a) $12\frac{1}{4}$ (b) $\frac{9}{10}$

**9.** (a) $\frac{19}{2}$ (b) $\frac{8}{1}$

**10.** (a) 18 (b) 21

**11.** $2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 5$

**12.**



**13.** 9 inches

**14.** (a) answers may vary
(b) 9 cm

**15.** 464

**16.** 132

**17.** 16

**18.** 9

**19.** $14\frac{1}{3}$

**20.** $6\frac{1}{2}$

**21.** $3\frac{1}{2}$

**22.** $2\frac{2}{3}$

**23.** $3\frac{1}{4}$

**24.** $\frac{5}{9}$

**25.** $\frac{1}{3}$

**26.** 900 r 13

**27.** 9188

**28.** 9020

**29.** 100,100

**30.** 8

### PRACTICE

**a.** $\frac{9}{10}$

**b.** $3\frac{1}{2}$

**c.** $1\frac{1}{4}$

**d.** $1\frac{7}{8}$

## PROBLEM SET 29

**1.** 54 boxes

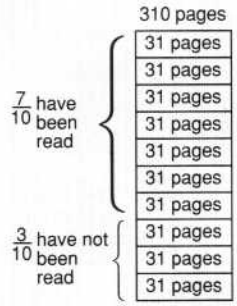
**2.** \$5.07

**3.** 28 relatives

**4.** 21 players

**5.** 14 players

**6.** (a) 217 pages
(b) 93 pages




**7.** $1\frac{1}{6}$

**8.** (c) $\frac{2}{5}$

**9.** (a) $7\frac{2}{3}$ (b) $6\frac{3}{4}$ (c) $\frac{2}{5}$

**10.** (a) $\frac{10}{9}$ (b) $\frac{1}{8}$ (c) $\frac{8}{19}$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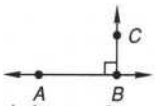
**11.** (a) $\frac{15}{20}$ (b) $\frac{16}{20}$ (c) $\frac{14}{20}$

**12.** (a) $5 \cdot 7$
(b) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5$

**13.** (a) $\frac{11}{2}$ (b) $\frac{6}{1}$ (c) $\frac{29}{8}$

**14.** $A = 4\frac{2}{3}$; $B = 5\frac{1}{2}$

**15.** (a)




(b) right angle

**16.** 184

**17.** 88

**18.** 25

**19.** $10\frac{1}{2}$

**20.** 8

**21.** $1\frac{5}{12}$

**22.** $\frac{2}{9}$

**23.** $\frac{2}{5}$

**24.** $1\frac{1}{3}$

**25.** $\frac{18}{35}$

**26.** 487 r 3

**27.** \$516.52

**28.** \$11.11

**29.** \$4.08

**30.** 6

### PRACTICE

**a.** 4

**b.** $8\frac{1}{6}$

**c.** $11\frac{1}{4}$

**d.** $\frac{5}{9}$

**e.** $1\frac{1}{3}$

**f.** $7\frac{1}{2}$

## PROBLEM SET 30

**1.** some and some more; 38 mm

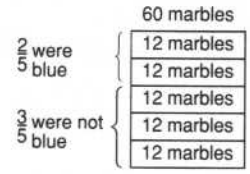
**2.** equal groups; \$22.10

**3.** time (later-earlier-difference); 1058 years

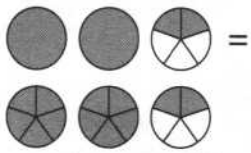
**4.** some went away; \$8.75

**5.** 144 pencils

**6.** (a) 24 marbles
(b) 36 marbles




**7.**




**8.** (a) $\frac{3}{100}$ (b) $\frac{97}{100}$

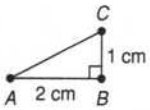
**9.** (a) $10\frac{1}{2}$ (b) $\frac{5}{6}$

**10.** (a) $\frac{9}{5}$ (b) $\frac{4}{23}$ (c) $\frac{1}{7}$

**11.** (a) 42 (b) 15 (c) 7

**12.** 53, 59

**13.**




**14.** $-3, 0, \frac{5}{6}, 1, \frac{4}{3}$

**15.** 450

**16.** 18

**17.** 23

**18.** $\frac{2}{9}$

**19.** $15\frac{1}{3}$

**20.** $4\frac{2}{3}$

**21.** $\frac{1}{32}$

**22.** $4\frac{2}{3}$

**23.** $\frac{3}{5}$

**24.** $\frac{5}{6}$

**25.** $8\frac{3}{4}$

**26.** $1\frac{1}{2}$

**27.** 459

**28.** \$62.56

**29.** 128,000

**30.** 102

### PRACTICE

**a.** 40

**b.** 36

**c.** 60

## PROBLEM SET 31

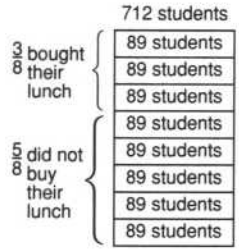
**1.** some and some more; 29,796

**2.** equal groups; 72 inches

**3.** equal groups; \$0.08 or 8¢

**4.** larger-smaller-difference; nine hundred eighty-nine million, one hundred thousand

**5.** (a) 267 students
(b) 445 students




**6.** 9 inches

**7.** (a) 6, 12, 18, 24, 30, 36
(b) 10, 20, 30, 40, 50, 60
(c) 30

**8.** 3500

**9.** (a) $11\frac{1}{3}$ (b) $\frac{1}{5}$

**10.** (a) $\frac{8}{41}$ (b) $\frac{1}{12}$ (c) $\frac{9}{4}$

**11.** (a) $\frac{15}{36}$ (b) $\frac{6}{36}$ (c) $\frac{28}{36}$

**12.** $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$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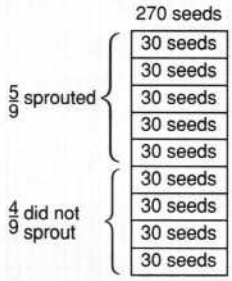
13. (a) $\frac{35}{6}$ (b) $\frac{12}{1}$ (c) $\frac{49}{4}$
14. (a) obtuse
(b) $\overline{AB}$ and $\overline{ED}$
15. 18 cm
16. 36
17. 128
18. 42
19. 11
20. $3\frac{3}{4}$
21. $8\frac{2}{5}$
22. 8
23. 4
24. $1\frac{3}{4}$
25. $\frac{1}{4}$
26. $\frac{2}{3}$
27. \$130.00
28. \$52.25
29. \$0.75
30. 11

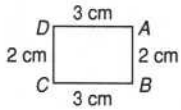
### PRACTICE

a. \$4.88
b. \$39.56
c. 20 boys

### PROBLEM SET 32

1. \$1.25
2. 17 fewer boys
3. 71 inches
4. 570 apricots
5. (a) 150 carrot seeds
(b) 120 carrot seeds




6. 6 inches
7. (a) 4, 8, 12, 16, 20, 24
(b) 10, 20, 30, 40, 50, 60
(c) 20
8. (a) 3400 (b) 3000
9. (a) $4\frac{1}{2}$ (b) $7\frac{1}{5}$ (c) 5
10. (a) 24 (b) 25 (c) 3
11. (a) $2 \cdot 31$
(b) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 13$
12. (a) $\frac{15}{2}$ (b) $\frac{15}{1}$
13. 

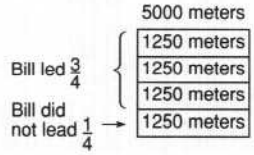
; 10 cm
14. (a) right (b) acute
(c) $\overline{ST}$
15. $8\frac{1}{2}$
16. 12
17. 189
18. 70
19. $4\frac{5}{7}$
20. $9\frac{2}{3}$
21. $7\frac{3}{8}$
22. $\frac{6}{7}$
23. $3\frac{1}{3}$
24. $\frac{4}{7}$
25. \$24,000
26. 2500
27. 1
28. 4,889
29. 3037
30. 7

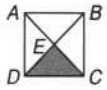
### PRACTICE

a. 28
b. $33\frac{1}{2}$
c. 55; 55

### PROBLEM SET 33

1. 244 pounds
2. 314 seconds
3. \$72.92
4. 1451
5. (a) 3750 meters
(b) 1250 meters




6. 24 cm
7. (a) 3, 6, 9, 12, 15, 18
(b) 4, 8, 12, 16, 20, 24
(c) 12
8. (a) 280 (b) 300
9. (a) $\frac{7}{30}$ (b) $3\frac{1}{4}$
10. (a) $\frac{10}{7}$ (b) $\frac{5}{23}$
11. (a) $\frac{21}{24}$ (b) $\frac{22}{24}$
12. (a) $3 \cdot 3 \cdot 3$
(b) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 7$
13. 32
14. 

15. $-1, 0, \frac{1}{10}, 1, \frac{11}{10}$
16. 30
17. 59
18. 9
19. $3\frac{1}{3}$
20. $12\frac{1}{4}$
21. $3\frac{7}{8}$
22. 8
23. $\frac{3}{10}$
24. 3
25. 4,800,000
26. 125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**27.** 0

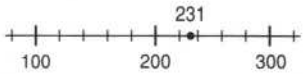
**28.** \$161.36

**29.** 1189

**30.** \$41.04

### PRACTICE

**a.**




200

**b.** 1800

**c.** 186,000

**d.** 5000

**e.** 9000

**f.** 300

### PROBLEM SET 34

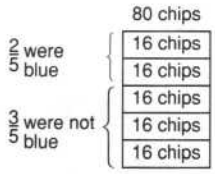
**1.** 200 inches

**2.** \$0.46 per pound

**3.** 80

**4.** seven hundred eighty billion, two hundred million

**5.** (a) 32 chips (b) 48 chips




**6.** 24

**7.** 3 in.

**8.** (a) 400 (b) 370

**9.** 6000 + 5000 = 11,000

**10.** (a) $5\frac{2}{3}$ (b) $\frac{1}{4}$

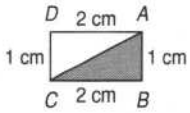
**11.** (a) $\frac{10}{1}$ (b) $\frac{63}{4}$

**12.** (a) 20 (b) 5

**13.** (a) $2 \cdot 3 \cdot 17$
(b) $2 \cdot 2 \cdot 3 \cdot 5 \cdot 17$

**14.** 370

**15.**




**16.** 24

**17.** 68

**18.** 99

**19.** $10\frac{5}{9}$

**20.** $8\frac{1}{3}$

**21.** $\frac{2}{3}$

**22.** $4\frac{1}{2}$

**23.** $1\frac{1}{3}$

**24.** $\frac{10}{21}$

**25.** 64,414

**26.** 16,000

**27.** 2

**28.** \$222.52

**29.** \$43.50

**30.** 11,262

### PRACTICE

**a.** $\frac{6}{10} < \frac{7}{10}$

**b.** $\frac{20}{24} < \frac{21}{24}$

**c.** $1\frac{23}{24}$

**d.** $5\frac{1}{3}$

**e.** $10\frac{3}{8}$

**f.** $2\frac{7}{18}$

### PROBLEM SET 35

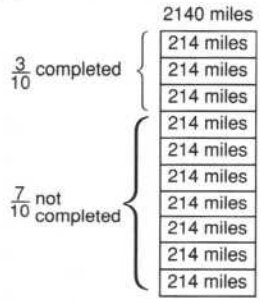
**1.** 78 inches

**2.** \$4.78

**3.** 1982 miles

**4.** 124 girls

**5.** (a) 642 miles
(b) 1498 miles




**6.** 15 inches

**7.** $\frac{8}{12}, \frac{9}{12}$

**8.** (a) 36,000 (b) 36,500

**9.** 600

**10.** (a) 17 (b) $5\frac{5}{8}$

**11.** <

**12.** (a) $\frac{1}{11}$ (b) $\frac{2}{25}$

**13.** (a) $3 \cdot 17$
(b) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

**14.** 16

**15.** 1, 2, 3, 5, 6, 7, 9

**16.** 12

**17.** 171

**18.** 28

**19.** $\frac{5}{6}$

**20.** $\frac{5}{12}$

**21.** $1\frac{1}{3}$

**22.** $1\frac{1}{2}$

**23.** $\frac{21}{32}$

**24.** $1\frac{3}{5}$

**25.** $5\frac{1}{2}$

**26.** $3\frac{3}{8}$

**27.** 1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**28.** \$371.52

**29.** 1199

**30.** \$40.67

### PRACTICE

**a.** $\frac{3}{100}$; 0.03

**b.** $\frac{3}{10}$; 0.3

**c.** 3

**d.** millionths' place

**e.** 4

**f.** thousandths' place

### PROBLEM SET 36

**1.** \$30.88

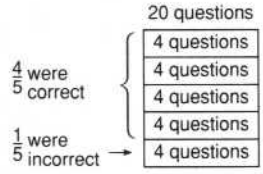
**2.** 341 pages

**3.** \$1.33

**4.** 115 years

**5.** 36 cm

**6.** (a) 16 questions
(b) 4 questions




**7.** 12

**8.** (a) 500,000 (b) 481,000

**9.** 30,000

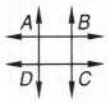
**10.** (a) $\frac{7}{100}$ (b) 0.07

**11.** 7

**12.** (a) = (b) <

**13.** (a) $4\frac{1}{2}$ (b) $\frac{15}{31}$

**14.** (a) 8 (b) 14 (c) 1

**15.** 

parallelogram; also rectangle

**16.** 8

**17.** 163

**18.** 12

**19.** $1\frac{1}{6}$

**20.** $\frac{1}{12}$

**21.** $3\frac{1}{2}$

**22.** $\frac{2}{3}$

**23.** $1\frac{11}{21}$

**24.** $\frac{5}{8}$

**25.** $5\frac{1}{3}$

**26.** $3\frac{5}{8}$

**27.** 0

**28.** \$406.29

**29.** 2022

**30.** \$21.40

### PRACTICE

**a.** twenty-five and one hundred thirty-four thousandths

**b.** one hundred and one hundredth

**c.** 102.3

**d.** 0.0125

**e.** 300.075

**f.** 10.30 = 10.30

**g.** 5.06 < 5.60

**h.** 1.100 > 1.099

### PROBLEM SET 37

**1.** 5750

**2.** 206 minutes

**3.** 1320 yards

**4.** $\frac{5}{6}$

**5.** 25 cm

**6.** (a) 3,000,000
(b) 3,200,000

**7.** $\frac{6}{12}, \frac{8}{12}, \frac{9}{12}$

**8.** 150,000

**9.** (a) 125 songs
(b) 75 songs

**10.** (a) $\frac{9}{10}$ (b) 0.9

**11.** three and twenty-five thousandths

**12.** 76.05

**13.** (a) 12.60 = 12.60
(b) 3.14159 < 3.14160

**14.** (a) $4\frac{2}{3}$ (b) $3\frac{3}{8}$ (c) $\frac{12}{25}$

**15.** $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 47$

**16.** 15

**17.** 266

**18.** 110

**19.** $1\frac{1}{8}$

**20.** $\frac{1}{12}$

**21.** $3\frac{1}{8}$

**22.** $10\frac{2}{3}$

**23.** 6

**24.** $6\frac{1}{8}$

**25.** $9\frac{5}{8}$

**26.** $3\frac{2}{3}$

**27.** 2

**28.** 774,000

**29.** \$403.08

**30.** \$20.47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### PRACTICE

**a.** 3.1416

**b.** 400

**c.** 57

### PROBLEM SET 38

**1.** 68 inches

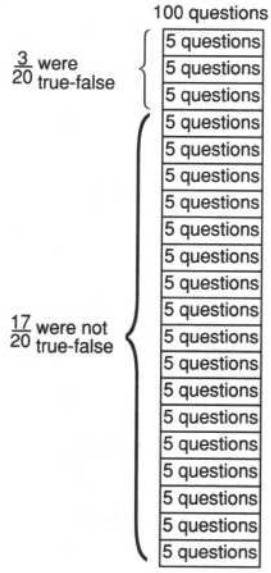
**2.** 46° F

**3.** 33,114 people

**4.** 8999

**5.** 32 cm

**6.** (a) 15 questions
(b) 85 questions




**7.** 30

**8.** (a) 15.74 (b) 16

**9.** (a) one hundred fifty and thirty-five thousandths
(b) fifteen ten-thousandths

**10.** (a) 0.125 (b) 100.025

**11.** (a) < (b) >

**12.** (a) 4 cm (b) 40 mm

**13.** (a) $1\frac{2}{7}$ (b) $5\frac{1}{2}$

**14.** (a) $\frac{1}{7}$ (b) $\frac{8}{27}$

**15.** (a) 5 (b) 18

**16.** 9

**17.** 375

**18.** 0

**19.** $1\frac{7}{8}$

**20.** $\frac{7}{12}$

**21.** $4\frac{1}{8}$

**22.** 3

**23.** $\frac{1}{2}$

**24.** $1\frac{1}{5}$

**25.** $14\frac{3}{8}$

**26.** $3\frac{2}{3}$

**27.** $1\frac{1}{2}$

**28.** 592,000

**29.** $1923.03

**30.** 3005

### PRACTICE

**a.** 1.6 cm

**b.** 2.65

**c.** 10.01

### PROBLEM SET 39

**1.** 201 raisins

**2.** 535 parts per million

**3.** $16.50

**4.** 1969

**5.** 9 inches

**6.** (a) $1.60 (b) $2.40

**7.** 28,000

**8.** 7.494

**9.** (a) two hundred and two hundredths
(b) one thousand, six hundred twenty-five millionths

**10.** (a) 0.000175
(b) 3030.03

**11.** (a) < (b) >

**12.** (a) 2.7 cm (b) 27 mm

**13.** 8.25

**14.** (a) $\frac{1}{4}$ (b) $5\frac{1}{2}$ (c) $\frac{2}{5}$

**15.** 7.5

**16.** 25

**17.** 226

**18.** 60

**19.** 2

**20.** $\frac{7}{12}$

**21.** $2\frac{2}{3}$

**22.** 1

**23.** $3\frac{3}{20}$

**24.** $\frac{4}{5}$

**25.** $11\frac{1}{8}$

**26.** $3\frac{1}{2}$

**27.** $\frac{3}{4}$

**28.** 5050

**29.** $2830.24

**30.** 296,000

### PRACTICE

**a.** 28.25

**b.** 23.41

**c.** 2

**d.** 30.884

**e.** 14.764

**f.** 11.125

### PROBLEM SET 40

**1.** $103.65

**2.** $499

**3.** $0.45

**4.** 58 seconds

**5.** 20 cm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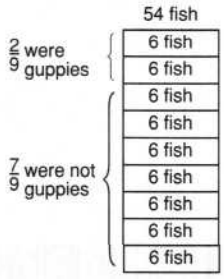
**6.** (a) 12 fish (b) 42 fish




**7.** 24

**8.** (a) $\frac{99}{100}$ (b) 0.99

**9.** (a) 2375.42 (b) 2400

**10.** one hundred and seventy-five thousandths

**11.** 0.00025

**12.** (a) 3.5 cm (b) 35 mm

**13.** 3.37

**14.** (a) 15 (b) $10\frac{1}{11}$

**15.** 1.25

**16.** 6

**17.** 154

**18.** 297

**19.** 24.03

**20.** 27.78

**21.** 31.538

**22.** 10.71

**23.** $7\frac{11}{12}$

**24.** 15

**25.** $\frac{1}{3}$

**26.** $1\frac{1}{3}$

**27.** 1557 r 21

**28.** 30,000

**29.** \$66.01

**30.** 6

### PRACTICE

**a.** 240 little fish, 90 big fish, 330 total; $\frac{3}{8}$

**b.** 14 girls, 16 boys, 30 total; $\frac{8}{7}$

**c.** won 3, lost 5, 8 total; $\frac{3}{5}$

**d.** 5 red, 3 blue, 8 total; $\frac{3}{8}$

## PROBLEM SET 41

**1.** $\frac{9}{7}$

**2.** 20 inches

**3.** 245 pages

**4.** 3.24 seconds

**5.** (a) 12 players (b) $\frac{3}{2}$

**6.** 55 mm

**7.** 42 cm

**8.** 3600 + 2900 + 900 = 7400

**9.** (a) 7 (b) 6.857

**10.** one hundred twenty and three hundred five ten-thousandths

**11.** (a) 0.000012
(b) 130,000.04

**12.** (a) 4.2 cm (b) 42 mm

**13.** 13.56

**14.** (a) $1\frac{1}{2}$ (b) 13 (c) $\frac{6}{25}$

**15.** (a) $\angle MPN$ (b) $\angle LPM$
(c) $\angle LPN$

**16.** 18

**17.** 28

**18.** 156

**19.** 30.57

**20.** 2.9

**21.** $7\frac{1}{12}$

**22.** $10\frac{1}{2}$

**23.** $3\frac{2}{3}$

**24.** $4\frac{3}{4}$

**25.** $\frac{11}{18}$

**26.** $3\frac{2}{3}$

**27.** 37,582

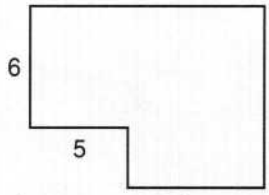
**28.** 2000 r 15

**29.** \$23.24

**30.** \$5.06

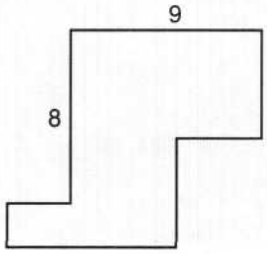
### PRACTICE

**a.**




perimeter = 42 feet

**b.**




perimeter = 44 feet

## PROBLEM SET 42

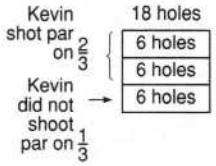
**1.** $\frac{2}{1}$

**2.** 52 cars

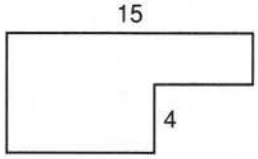
**3.** 45 seconds

**4.** \$1.74

**5.** (a) 12 holes (b) 6 holes




**6.**




perimeter = 44 inches

**7.** (a) 15 (b) 3 (c) 20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**8.** 36

**9.** (a) 0.49 (b) 0.51

**10.** (a) 3184.56 (b) 3200

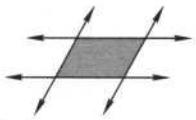
**11.** (a) one thousand, eight hundred seventy-five millionths
(b) six hundred and seven thousandths

**12.** (a) 0.0375 (b) 60.07

**13.** (a) $6\frac{2}{3}$ (b) $4\frac{4}{5}$ (c) $\frac{2}{3}$

**14.** $1\frac{3}{4}$ inches

**15.**



**16.** 14

**17.** 2.5

**18.** 161

**19.** 17.8

**20.** 1

**21.** 30

**22.** $5\frac{1}{12}$

**23.** $1\frac{1}{2}$

**24.** $1\frac{1}{2}$

**25.** $\frac{2}{3}$

**26.** $1\frac{3}{4}$

**27.** 192,000

**28.** 125

**29.** $38.62

**30.** $6.88

### PRACTICE

**a.** 20,000 donuts

**b.** 26,000 cans

**c.** test 4

**d.** $\frac{1}{6}$

## PROBLEM SET 43

**1.** $\frac{3}{10}$

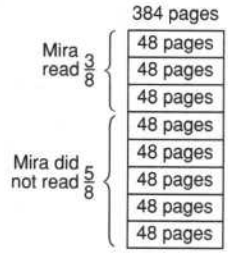
**2.** 115 pages

**3.** 352 seconds

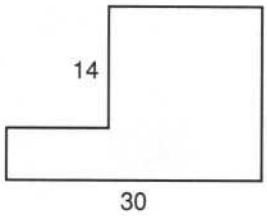
**4.** 5000 cans

**5.** 75

**6.** (a) 144 (b) 48




**7.**




perimeter = 100 cm

**8.** (a) 14 (b) 5 (c) 30

**9.** (a) 3000 (b) 2986.342

**10.** (a) three hundred twenty-five hundred-thousandths
(b) three billion, two hundred eighty million, four thousand

**11.** (a) 1.075 (b) $20\frac{5}{12}$

**12.** (a) 1.2 cm (b) 12 mm

**13.** 12.93

**14.** (a) $10\frac{1}{4}$ (b) $3\frac{1}{5}$

**15.** (a) $\overline{AC}$ (b) $\overline{BC}$

**16.** 2.4

**17.** 8.3

**18.** 14

**19.** 37.07

**20.** 361.18

**21.** 7

**22.** $1\frac{7}{8}$

**23.** 1

**24.** 0

**25.** $1\frac{1}{2}$

**26.** $9\frac{5}{8}$

**27.** 282,000

**28.** 625

**29.** $23.67

**30.** $2.46

### PRACTICE

**a.** 9

**b.** 24

**c.** 10

**d.** 20

## PROBLEM SET 44

**1.** 3 inches

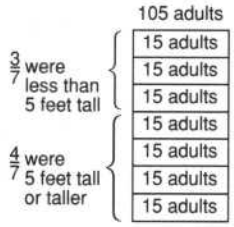
**2.** between his thirteenth and fourteenth birthdays

**3.** $\frac{3}{4}$

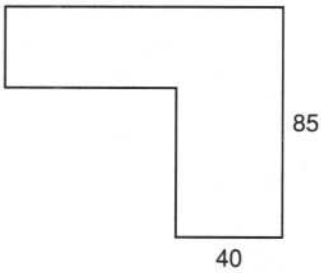
**4.** 464 miles

**5.** $234

**6.** (a) 45 adults
(b) 60 adults




**7.**




perimeter = 410 mm

**8.** 72

**9.** (a) 2.5 (b) $2\frac{1}{2}$

**10.** (a) 0.92 (b) 0.91667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**11.** (a) three and one hundred seventy-five ten-thousandths
(b) twenty-three billion, three hundred ten million, fifty thousand

**12.** (a) 100.075 (b) $10\frac{11}{12}$

**13.** (a) $28\frac{1}{3}$ (b) $5\frac{1}{4}$

**14.** =

**15.** 9

**16.** 24

**17.** 6

**18.** 0.39

**19.** 0.6

**20.** 30.19

**21.** 1.11

**22.** $1\frac{3}{5}$

**23.** $\frac{1}{3}$

**24.** $11\frac{1}{24}$

**25.** $2\frac{13}{20}$

**26.** 15

**27.** $\frac{5}{6}$

**28.** 465,600

**29.** 12,500

**30.** $1.23

### PRACTICE

**a.** 1.008

**b.** 0.0072

**c.** 37.8

**d.** 0.006

**e.** 1

**f.** 0.027

### PROBLEM SET 45

**1.** $\frac{2}{5}$

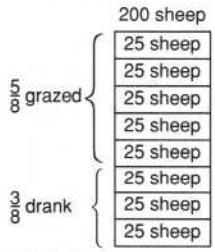
**2.** (a) 380 seconds
(b) 95 seconds

**3.** 432 miles

**4.** 4.8° F

**5.** 210 mm

**6.** (a) 125 sheep
(b) 75 sheep




**7.** 25 mm

**8.** 4.5 cm

**9.** (a) 0.083 (b) 0.1

**10.** (a) twelve and five hundred forty-five ten-thousandths
(b) ten and eleven hundredths

**11.** (a) 0.000025
(b) 5,000,250,000

**12.** 0.76

**13.** (a) 70.07 (b) $70\frac{7}{100}$

**14.** (a) $\angle ABD$ or $\angle ABC$
(b) $\angle DCA$

**15.** 20

**16.** 10

**17.** 20

**18.** 1.9

**19.** 7

**20.** 0.486

**21.** 0.0075

**22.** 22.5

**23.** 0.0024

**24.** 2.85

**25.** 0.66

**26.** 10

**27.** $1\frac{1}{5}$

**28.** $7\frac{5}{24}$

**29.** $2\frac{13}{20}$

**30.** $4.50

### PRACTICE

**a.** 2.244

**b.** 0.0036

**c.** 0.68

**d.** 36.25

**e.** 3.425

**f.** 37.1

### PROBLEM SET 46

**1.** $\frac{3}{4}$

**2.** 107 points

**3.** 234 inches

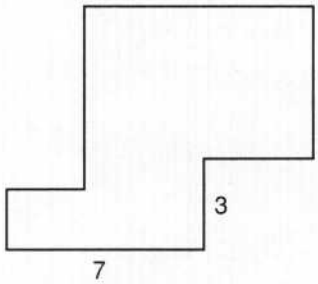
**4.** 8100

**5.** 6.2 kilometers

**6.** (a) $\frac{3}{10}$ (b) $\frac{7}{3}$

**7.** 23

**8.**




perimeter = 38 ft

**9.** (a) 3.6 (b) $3\frac{3}{5}$

**10.** (a) 5.142857 (b) 5.14

**11.** 17

**12.** (a) one thousand and two hundredths
(b) one hundred two thousandths

**13.** (a) 0.00067 (b) 100.023

**14.** (a) $4\frac{3}{4}$ (b) $\frac{5}{13}$

**15.** $\frac{35}{70}, \frac{42}{70}, \frac{50}{70}$

**16.** 15

**17.** 45

**18.** 4.15

**19.** 1.21

**20.** 19.04

**21.** 0.0048

**22.** 0.863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**23.** 0.0016

**24.** 0.925

**25.** $\frac{3}{4}$

**26.** $5\frac{3}{4}$

**27.** $1\frac{5}{12}$

**28.** 12

**29.** $\frac{3}{4}$

**30.** 28.174

### PRACTICE

**a.** $2.\overline{72}$

**b.** $0.81\overline{6}$

**c.** 0.667

**d.** 5.382

**e.** $0.141\overline{6}$

**f.** 0.1417

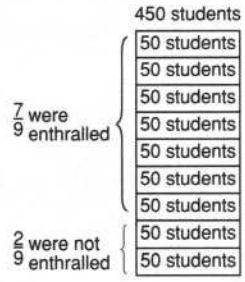
## PROBLEM SET 47

**1.** $\frac{2}{3}$

**2.** 27 students

**3.** 161 miles

**4.** (a) 350 students
(b) 100 students

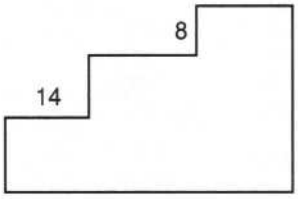



**5.** (a) 5.1667 (b) 5.2727

**6.** 8

**7.** $\frac{3}{10}$

**8.**




perimeter = 156 inches

**9.** (a) $0.1\overline{54}$ (b) 0.155

**10.** 0.607

**11.** (a) seven hundred sixty and five thousandths
(b) three trillion, five hundred twenty-four billion

**12.** (a) $2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5 \cdot 71$
(b) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

**13.** $1\frac{3}{8}$ inches

**14.** 60

**15.** 35

**16.** 8

**17.** 12

**18.** 4.4

**19.** 5.83

**20.** 103.2

**21.** 0.12

**22.** 0.685

**23.** 0.036

**24.** 1.775

**25.** $6\frac{13}{24}$

**26.** $12\frac{1}{3}$

**27.** $1\frac{1}{12}$

**28.** 48

**29.** $1\frac{1}{3}$

**30.** 28.088

### PRACTICE

**a.** $\frac{6}{25}$

**b.** $45\frac{3}{5}$

**c.** $2\frac{3}{8}$

**d.** 5.75

**e.** 4.6

**f.** 0.625

**g.** $0.8\overline{3}$

## PROBLEM SET 48

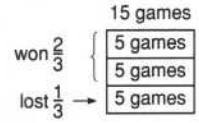
**1.** $\frac{2}{7}$

**2.** (a) 704 seconds
(b) 88 seconds

**3.** 7.7 gallons

**4.** 275,200,000 people

**5.** (a) 10 (b) $\frac{2}{1}$




**6.** 𝍸 𝍸 𝍸 |

**7.** 80 mm

**8.** (a) $\frac{3}{8}$ (b) $5\frac{11}{20}$

**9.** (a) 2.4 (b) 0.125

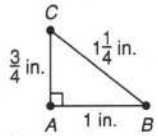
**10.** (a) 0.455 (b) 3.143

**11.** (a) $0.158\overline{3}$ (b) 0.158

**12.** 3.883

**13.** (a) $99\frac{9}{10}$ (b) $1\frac{1}{4}$

**14.**




$1\frac{1}{4}$ inches

**15.** 14

**16.** 40

**17.** 25

**18.** 1.48

**19.** 14.7

**20.** 153.6

**21.** 0.0012

**22.** 4.026

**23.** 0.024

**24.** 1.625

**25.** $1\frac{11}{20}$

**26.** $12\frac{3}{5}$

**27.** $3\frac{1}{2}$

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**28.** 20

**29.** $1\frac{1}{2}$

**30.** 36.032

### PRACTICE

**a.** 13 r 3

**b.** $13\frac{3}{4}$

**c.** 13.75

**d.** 1.833

### PROBLEM SET 49

**1.** $\frac{4}{3}$

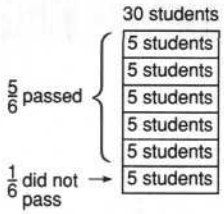
**2.** 89

**3.** $\frac{3}{5}$

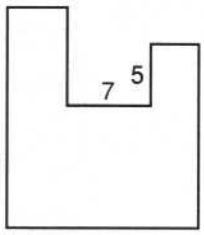
**4.** $14.50

**5.** two and eight hundred eighty-three thousandths

**6.** (a) 5 (b) $\frac{5}{1}$




**7.**




perimeter = 78 meters

**8.** $\frac{3}{4}$

**9.** 0.625

**10.** 123.667

**11.** (a) 10 r 4 (b) $10\frac{4}{5}$ (c) 10.8

**12.** $0.4\overline{90}$

**13.** 210

**14.** $-12, 0, 0.12, \frac{1}{2}, 1.2$

**15.** 5

**16.** 6

**17.** 20

**18.** 20

**19.** 0.86

**20.** 0.9

**21.** 6.25

**22.** 0.024

**23.** 2.0525

**24.** 0.017

**25.** $9\frac{1}{12}$

**26.** $\frac{1}{6}$

**27.** 100

**28.** $\frac{2}{3}$

**29.** 39.85

**30.** =

### PRACTICE

**a.** 8.6

**b.** 1.6

**c.** 340

**d.** 300

### PROBLEM SET 50

**1.** $\frac{3}{5}$

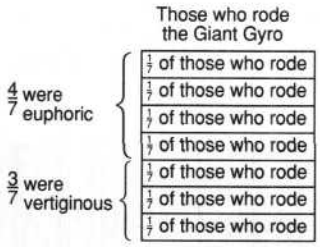
**2.** 117 kilometers per hour

**3.** 4.01

**4.** 4

**5.** $\frac{1}{5}$

**6.** (a) $\frac{3}{7}$ (b) $\frac{4}{3}$




**7.** 80

**8.** 18 cm

**9.** $62\frac{1}{2}$

**10.** 0.09

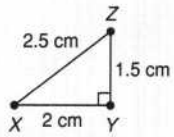
**11.** (a) 23.54545 (b) 0.91667

**12.** (a) 8 r 3 (b) $8\frac{1}{2}$ (c) 8.5

**13.** 0.567

**14.** 0.096; ninety-six thousandths

**15.**




2.5 cm

**16.** 12

**17.** 12

**18.** 11

**19.** 0.97

**20.** 2.62

**21.** 0.0225

**22.** 12

**23.** 2.828

**24.** 0.8

**25.** $1\frac{7}{8}$

**26.** $3\frac{5}{12}$

**27.** 10

**28.** 6

**29.** 61

**30.** 8

### PRACTICE

**a.** 4¢ per ounce

**b.** 5¢ per ounce

**c.** The 24-ounce jar is the better buy because $\frac{9.5¢}{\text{oz}}$ is less than $\frac{11¢}{\text{oz}}$.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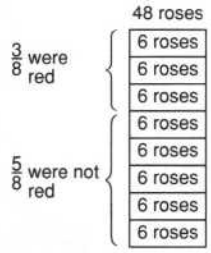
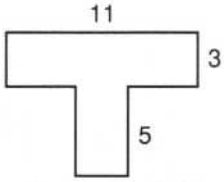
### PROBLEM SET 51

1. Brand X = \$0.15 per ounce; Brand Y = \$0.16 per ounce; Brand X is a better buy.
2. \$4.20
3. $\frac{4}{3}$
4. \$1.94
5. one and seventeen hundredths
6. (a) 18 roses (b) 30 roses (c) $\frac{5}{8}$




7. (a) < (b) =
8. 300 feet
9. $\frac{2}{25}$
10. (a) 9 r 3 (b) $9\frac{3}{5}$
11. 14.286
12. 109,000
13. $0.\overline{09}$
14. 5.6
15. 30
16. 75
17. 3.5
18. 778
19. 

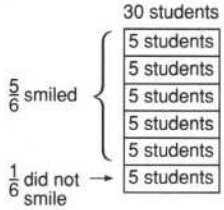
perimeter = 38 inches
20. 600
21. 100,000
22. $9\frac{5}{8}$
23. $4\frac{1}{6}$
24. 3
25. $1\frac{2}{3}$
26. 14.08
27. 150
28. 0.84
29. 0.1065
30. 79

### PRACTICE

a. "four cubed" or "four to the third power"
b. "five squared" or "five to the second power"
c. "ten to the sixth power"
d. base is 10; exponent is 3
e. 125
f. 10,000
g. 1
h. 24

### PROBLEM SET 52

1. 64 years
2. (a) $\frac{7}{12}$ (b) $\frac{5}{7}$
3. 6 oz can = \$0.15 per ounce; 9 oz can = \$0.14 per ounce; 9-ounce can is a better buy.
4. 2725
5. eighty-three thousandths
6. (a) 25 students (b) 5 students




7. 0.025 < 0.03
8. (a) answers may vary (b) 5 cm
9. (a) $3.\overline{3}$ (b) 0.625
10. (a) $0.11\overline{36}$ (b) 0.114
11. 180,000
12. exponent is 3; base is 5
13. 2 inches
14. (a) $\frac{5}{12}$ (b) $\frac{7}{12}$
15. (a) $\angle DAB$ or $\angle A$ (b) $\angle ADC$ or $\angle D$ (c) acute angle
16. 14
17. 6
18. 268
19. 7.47
20. 17
21. 9000
22. $2\frac{7}{20}$
23. $2\frac{7}{12}$
24. 25
25. $\frac{3}{5}$
26. 16.56
27. 0.018
28. 1.25
29. 0.025
30. 40

### PRACTICE

a. $(4 \times 10^2) + (5 \times 10^1) + (6 \times 10^0)$
b. $(1 \times 10^3) + (7 \times 10^2) + (6 \times 10^1)$
c. $(1 \times 10^5) + (8 \times 10^4) + (6 \times 10^3)$
d. 24,250
e. 25,000,000

### PROBLEM SET 53

1. (a) true (b) true
2. $\frac{5}{6}$
3. $\frac{4}{11}$
4. 1.56
5. one hundred forty-four ten-thousandths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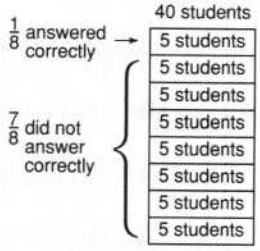
**6.** (a) 5 students
(b) 35 students




**7.** (a) < (b) <

**8.** (a) Answers may vary.
(b) Answers may vary.

**9.** $\frac{3}{8}$

**10.** 14.75

**11.** (a) 53,714.545
(b) 54,000

**12.** $(5 \times 10^3) + (2 \times 10^2) + (8 \times 10^1)$

**13.** 3.03

**14.** 60

**15.** 54

**16.** 0.9

**17.** 137

**18.** 42 cm

**19.**

**20.** 44

**21.** 3600

**22.** $10\frac{1}{30}$

**23.** $2\frac{19}{24}$

**24.** 10

**25.** $\frac{1}{2}$

**26.** 50.886

**27.** 4.632

**28.** \$0.75

**29.** 0.03625

**30.** 23.75

### PRACTICE

**a.** 150 $m^2$

**b.** 10 $in.^2$

**c.** 16 $cm^2$

**d.** 25 $cm^2$

### PROBLEM SET 54

**1.** 4.8 inches

**2.** \$0.31 per ounce

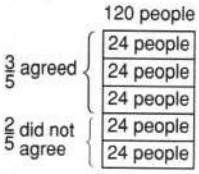
**3.** \$5

**4.** $\frac{5}{4}$

**5.** 3,213,000,000

**6.** 96 tiles

**7.** (a) 72 people
(b) 48 people




**8.** (a) 25 mm (b) 2.5 cm

**9.** $6.1\overline{6}$

**10.** 0.5727

**11.** 40,000 − 21,000 = 19,000

**12.** $(5 \times 10^4) + (7 \times 10^2) + (4 \times 10^0)$

**13.** (a) 40 cm (b) 100 $cm^2$

**14.** 15

**15.** (a) $\frac{1}{4}$ (b) 0.75

**16.** 25

**17.** 18

**18.** 377

**19.** 4.97

**20.** 100

**21.** 47,000

**22.** $3\frac{2}{15}$

**23.** $1\frac{1}{10}$

**24.** 30

**25.** $2\frac{2}{15}$

**26.** 2.386

**27.** 2.037

**28.** 1.728

**29.** 0.002

**30.** 20,000

### PRACTICE

**a.** 8

**b.** 11

**c.** 7

**d.** 40 cm

### PROBLEM SET 55

**1.** 1959

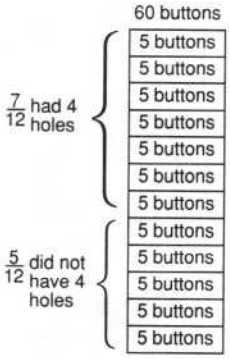
**2.** Brand X

**3.** $\frac{4}{11}$

**4.** \$111

**5.** one and ninety-three hundredths

**6.** (a) $\frac{5}{12}$ (b) 25 buttons




**7.** =

**8.** (a) $\frac{3}{25}$ (b) $\frac{3}{250}$

**9.** $0.49\overline{16}$

**10.** (a) 6 cm (b) $2\frac{3}{8}$ inches

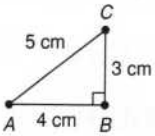
**11.** 10,000

**12.** (a) $11\frac{1}{3}$ (b) $\frac{7}{8}$

**13.** $(2 \times 10^5) + (5 \times 10^4)$

**14.** 81 $in.^2$

**15.**




5 cm

**16.** 15

**17.** 12

**18.** 2.6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**19.** 2.76

**20.** 0

**21.** 2

**22.** $50\frac{11}{24}$

**23.** $6\frac{19}{20}$

**24.** 44

**25.** $1\frac{4}{5}$

**26.** 35.75

**27.** 9.999

**28.** 0.0077

**29.** 1.001

**30.** 200

### PRACTICE

**a.** $41\frac{\text{francs}}{\text{dollar}}$; $\frac{1}{41}\frac{\text{dollar}}{\text{franc}}$

**b.** $23\frac{\text{miles}}{\text{gallon}}$; $\frac{1}{23}\frac{\text{gallon}}{\text{mile}}$; $23\frac{\text{miles}}{\text{gallon}}$

**c.** $52\frac{\text{miles}}{\text{hour}}$; $\frac{1}{52}\frac{\text{hour}}{\text{mile}}$; $52\frac{\text{miles}}{\text{hour}}$

### PROBLEM SET 56

**1.** $96\frac{\text{kilometers}}{\text{hour}}$; $\frac{1}{96}\frac{\text{hour}}{\text{kilometer}}$; $96\frac{\text{kilometers}}{\text{hour}}$

**2.** 13¢ per ounce

**3.** (a) $\frac{1}{5}$ (b) $\frac{1}{4}$

**4.** 9.3

**5.** \$6.36

**6.** 9 in.$^2$

**7.** (a) 12 days (b) 18 days

**8.** $\frac{3}{11}$

**9.** 0.875

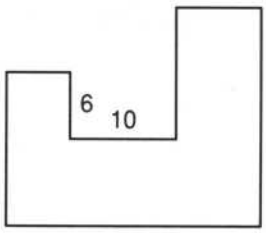
**10.** (a) 30 r 3 (b) $30\frac{3}{4}$

**11.** (a) 5.455 (b) 5.45

**12.** $(3 \times 10^9) + (2 \times 10^8)$

**13.** (a) $\frac{2}{5}$ (b) 0.6

**14.**




perimeter = 100 cm

**15.** 65 miles per gallon

**16.** 14

**17.** 6

**18.** $1\frac{1}{4}$

**19.** 525

**20.** 100

**21.** 14

**22.** $17\frac{1}{9}$

**23.** $4\frac{5}{12}$

**24.** $62\frac{1}{2}$

**25.** $\frac{7}{9}$

**26.** 37.905

**27.** 2.801

**28.** 2880

**29.** 0.00091

**30.** \$242

### PRACTICE

**a.** $\frac{3}{10}$

**b.** $1\frac{1}{5}$

**c.** 60%

**d.** 150%

### PROBLEM SET 57

**1.** $32\frac{\text{kilometers}}{\text{hour}}$

**2.** $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 7$

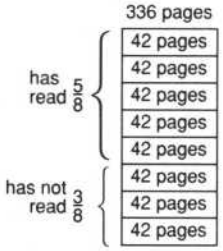
**3.** (a) $\frac{2}{25}$ (b) $1\frac{1}{2}$

**4.** 13%

**5.** $\frac{1}{5}$

**6.** \$6400

**7.** (a) 210 pages
(b) 126 pages




**8.** (a) 25% (b) 140%

**9.** 100.8

**10.** 0.545

**11.** $5\frac{\text{cents}}{\text{piece}}$; $\frac{1}{5}\frac{\text{piece}}{\text{cents}}$

**12.** $(6 \times 10^2) + (2 \times 10^1) + (3 \times 10^0)$

**13.** 46 inches

**14.** (a) 42 cm$^2$ (b) 40 cm$^2$

**15.** 40 cm

**16.** 100

**17.** 16

**18.** 0.24

**19.** $\frac{1}{6}$

**20.** 60

**21.** 4

**22.** $1\frac{5}{12}$

**23.** $12\frac{1}{12}$

**24.** 1

**25.** 2

**26.** 44.796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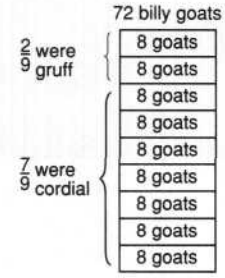
**27.** 9.976
**28.** 126,400
**29.** 0.004
**30.** $199

### PRACTICE

**a.** 5 ft 10 in.
**b.** 6 ft 8 in.
**c.** 4 yd 1 ft 5 in.
**d.** 12 hr 20 sec

### PROBLEM SET 58

**1.** 25
**2.** 9.2 yd
**3.** $4\frac{\text{arrows}}{\text{dollar}}$; $\frac{1}{4}\frac{\text{dollar}}{\text{arrow}}$
**4.** 49 sides
**5.** 6.39
**6.** (a) 56 goats (b) $\frac{2}{7}$



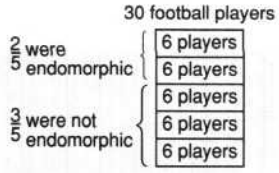

**7.** 0.5, $0.\overline{54}$, $0.\overline{5}$
**8.** (a) Answers may vary.
(b) $2\frac{5}{8}$ inches
**9.** (a) 30 r 5 (b) $30\frac{5}{12}$
**10.** (a) $\frac{3}{100}$ (b) $1\frac{3}{4}$
**11.** (a) 10% (b) 160%
**12.** $(1 \times 10^7) + (6 \times 10^6)$
**13.** 2,200,000 + 3,300,000 = 5,500,000
**14.** (a) 30 in.$^2$ (b) 56 in.$^2$
**15.** 42 in.
**16.** 54
**17.** 16
**18.** $\frac{1}{3}$
**19.** 0.29
**20.** 74
**21.** 31,400
**22.** $5\frac{5}{12}$
**23.** $16\frac{2}{3}$
**24.** 6 days
**25.** 4 yd 1 ft 3 in.
**26.** 65.135
**27.** 0.343
**28.** 0.0345
**29.** $1.08
**30.** $300

### PRACTICE

**a.** $\frac{15 \text{ chairs}}{1 \text{ row}}$; $\frac{1 \text{ row}}{15 \text{ chairs}}$
**b.** 270 chairs
**c.** $\frac{24 \text{ miles}}{1 \text{ gallon}}$; $\frac{1 \text{ gallon}}{24 \text{ miles}}$
**d.** $6\frac{2}{3}$ gallons

### PROBLEM SET 59

**1.** 2.5
**2.** (a) $\frac{2}{5}$ (b) 60%
**3.** 9¢ per ounce; 8¢ per ounce; 18-ounce box is the better buy.
**4.** $8\frac{\text{miles}}{\text{hour}}$
**5.** $4.50
**6.** (a) $\frac{60 \text{ miles}}{1 \text{ hour}}$; $\frac{1 \text{ hour}}{60 \text{ miles}}$
(b) 7 hours
**7.** (a) 12 players (b) 60%




**8.** (b) 40%
**9.** 3.8333
**10.** $2\frac{1}{2}$
**11.** $83\frac{1}{3}\%$
**12.** $(7 \times 10^4) + (5 \times 10^3)$
**13.** 97
**14.** (a) 54 cm$^2$ (b) 108 cm$^2$
**15.** 60 cm
**16.** 60
**17.** 6
**18.** 2.04
**19.** $\frac{5}{8}$
**20.** 135
**21.** $195.40
**22.** 12 hr 9 min 5 sec
**23.** 8 yd
**24.** $4\frac{5}{12}$
**25.** $11\frac{3}{14}$
**26.** 4096
**27.** 0.24
**28.** 1
**29.** 0.009
**30.** 4000

### PRACTICE

**a.** 256 cm$^2$
**b.** 215 cm$^2$
**c.** 170 cm$^2$

### PROBLEM SET 60

**1.** 3 tests
**2.** 80
**3.** $\frac{25 \text{ miles}}{1 \text{ gallon}}$; $\frac{1 \text{ gallon}}{25 \text{ miles}}$; 300 miles
**4.** 48.902
**5.** 27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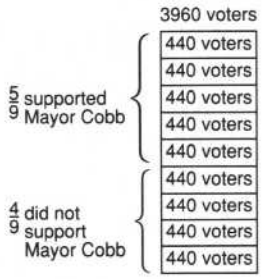
**6.** (a) 1760 voters (b) $\frac{5}{4}$




**7.** (a) 30% (b) 70%

**8.** $1\frac{3}{5}$

**9.** $66\frac{2}{3}\%$

**10.** 0.067

**11.** $(1 \times 10^{10}) + (2 \times 10^{9})$

**12.** 30 yd

**13.** (a) 52 r 1 (b) $52\frac{1}{7}$

**14.** 7.5

**15.** 30

**16.** 2.65

**17.** $\frac{1}{2}$

**18.** 64 ft

**19.** 186 $ft^2$

**20.** 30

**21.** 240 miles

**22.** $\frac{17}{24}$

**23.** $\frac{5}{6}$

**24.** 4 days 8 hr 7 min

**25.** 5 yd 2 ft 2 in.

**26.** 20.8076

**27.** 87.84

**28.** 300,000

**29.** \$1.44

**30.** \$400

### PRACTICE

**a.** $1.5 \times 10^7$

**b.** $4 \times 10^{11}$

**c.** $5.09 \times 10^6$

**d.** 3,400,000

**e.** 500,000,000

**f.** 100,000

### PROBLEM SET 61

**1.** one hundred eighty-three billion, fifty million

**2.** $7\frac{1}{2}$ in.

**3.** $\frac{\$0.25}{1 \text{ dozen}}$; $\frac{1 \text{ dozen}}{\$0.25}$; \$1.75

**4.** 7¢ per can

**5.** (a) $\frac{2}{7}$ (b) $\frac{5}{2}$

**6.** $1.2 \times 10^7$

**7.** 12,000

**8.** 0.125

**9.** (a) 30,000 (b) 5000

**10.** $\frac{19}{20}$

**11.** 19.2

**12.** (a) true (b) true (c) false

**13.** 64 m

**14.** 144 $m^2$

**15.** 50%

**16.** 10

**17.** 1

**18.** 3.03

**19.** 1.44

**20.** 60

**21.** 160 mm

**22.** 8 days 3 hr 15 min

**23.** 5 yd 2 in.

**24.** $8\frac{1}{24}$

**25.** $5\frac{25}{27}$

**26.** 66.497

**27.** 4.375

**28.** \$2.60

**29.** 0.05

**30.** 37.5

### PRACTICE

**a.** 29

**b.** 12

**c.** 13

**d.** 32

### PROBLEM SET 62

**1.** 3

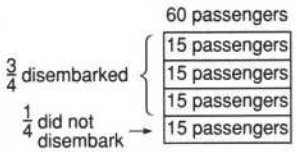
**2.** 8 nonagons

**3.** 176.803

**4.** \$1.98

**5.** (a) 140 pages (b) 190 pages

**6.** (a) 45 passengers (b) 25%




**7.** $3.75 \times 10^6$

**8.** 2,050,000

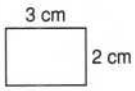
**9.** $7\frac{3}{5}$

**10.** 3.273

**11.** 275%

**12.** (a) $7.\overline{7}$ (b) 7.778

**13.** 0.99

**14.** 

100 mm

**15.** 6 $cm^2$

**16.** 15

**17.** 2

**18.** 13.2

**19.** 10

**20.** 20

**21.** 19

**22.** 132 miles

**23.** 8 hr 39 min 25 sec

**24.** $20\frac{1}{12}$

**25.** $3\frac{5}{8}$

**26.** 100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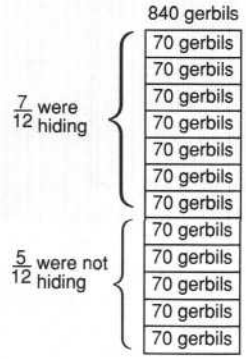
**27.** 1
**28.** 1,000,000
**29.** 0.0013
**30.** $40

### PRACTICE

**a.** $\frac{1 \text{ yd}}{36 \text{ in.}}$ and $\frac{36 \text{ in.}}{1 \text{ yd}}$
**b.** $\frac{100 \text{ cm}}{1 \text{ m}}$ and $\frac{1 \text{ m}}{100 \text{ cm}}$
**c.** $\frac{16 \text{ oz}}{1 \text{ lb}}$ and $\frac{1 \text{ lb}}{16 \text{ oz}}$
**d.** 360 inches
**e.** 8 yd
**f.** 288 pence

### PROBLEM SET 63

**1.** (a) 16 boys (b) 16 girls
**2.** 50%
**3.** $\frac{5}{16}$
**4.** (a) $18.32 (b) $4.58
**5.** (a) $\frac{5}{12}$ (b) 350 gerbils



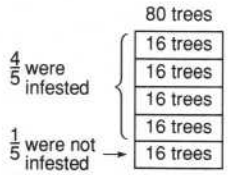

**6.** $1 \times 10^{12}$
**7.** 700
**8.** (a) 105 ft (b) 20 m
**9.** $2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5 \cdot 5$
**10.** 20,000 − 12,000 = 8000
**11.** $1\frac{2}{5}$
**12.** 21.5
**13.** 35 cm
**14.** 104 $ft^2$
**15.** 46 ft
**16.** 70
**17.** 1
**18.** 0.75
**19.** 8.5
**20.** 58
**21.** 14
**22.** 7 ft
**23.** 4 yd 1 ft 2 in.
**24.** $15\frac{1}{6}$
**25.** $3\frac{4}{5}$
**26.** 69.95
**27.** 0.085
**28.** $0.78
**29.** 1.2
**30.** 50

### PRACTICE

**a.** 49 boys
**b.** 25 sparrows
**c.** 405 untagged fish

### PROBLEM SET 64

**1.** 83 years
**2.** 197 cm
**3.** 960 losers
**4.** $4.55
**5.** 2,300,600 slipped in
**6.** (a) 64 trees (b) 16 trees



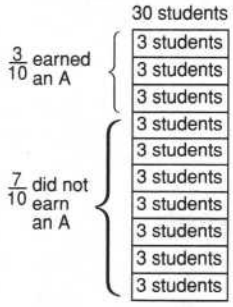

**7.** $4.05 \times 10^5$
**8.** 4000
**9.** (a) 1760 yd
(b) 3000 mm
**10.** 3.1416
**11.** $233\frac{1}{3}\%$
**12.** (a) $16.\overline{6}$ (b) 16.67
**13.** 2
**14.** 42 cm
**15.** 62 $cm^2$
**16.** 2.1
**17.** 1.41
**18.** 18
**19.** 111
**20.** 19
**21.** 10 m
**22.** 4 weeks 5 days
**23.** $6\frac{1}{3}$
**24.** 12
**25.** 21.77
**26.** 22.51
**27.** $0.27
**28.** 1
**29.** 0.105
**30.** 1500

### PRACTICE

**a.** 90 points
**b.** 68
**c.** 79

### PROBLEM SET 65

**1.** 32 rowboats
**2.** 105
**3.** $0.17
**4.** $\frac{1}{2}$ in.
**5.** (a) 9 students (b) 30%




**6.** $6.75 \times 10^8$
**7.** 186,000
**8.** (a) 288 in. (b) 50 cm
**9.** $0.02 \cdot 0.025 = 0.0005$
**10.** $\frac{12}{25}$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**11.** (a) 9 r 3 (b) $9\frac{3}{8}$

**12.** (a) side *AD* (b) side *CD* (c) $\angle DAB$ or $\angle A$

**13.** 6 inches

**14.** 188 in.$^2$

**15.** 68 in.

**16.** 5.44

**17.** 21

**18.** 0

**19.** 52

**20.** 56

**21.** 360 in.

**22.** 9 yd

**23.** $14\frac{5}{24}$

**24.** $3\frac{7}{15}$

**25.** $73\frac{1}{2}$

**26.** $\frac{4}{9}$

**27.** 8.111

**28.** 0.00168

**29.** 0.0025

**30.** 350

### PRACTICE

**a.** 1 hr 44 min 8 sec

**b.** 4 yd 1 ft 10 in.

**c.** 18 hr 45 min

### PROBLEM SET 66

**1.** nine ten-thousandths

**2.** (a) 9 ft (b) 42 ft

**3.** \$4

**4.** 86

**5.** Brand X = 12.5¢ per ounce; Brand Y = 12¢ per ounce; Brand Y is a better buy.

**6.** (a) $\frac{3}{8}$ (b) $\frac{3}{5}$

**7.** $6.1 \times 10^5$

**8.** 15,000

**9.** (a) 9 days (b) 300 seconds

**10.** 5.17

**11.** $1 \times 10^8$ pennies

**12.** $16\frac{2}{3}\%$

**13.** 70

**14.** 40

**15.** 444

**16.** 1.5

**17.** 110 mm

**18.** 490 mm$^2$

**19.** 90

**20.** 2

**21.** 8 yd 2 ft

**22.** 2 yd 2 ft 6 in.

**23.** 352 km

**24.** $6\frac{2}{3}$

**25.** 3

**26.** $4\frac{11}{16}$

**27.** 9.507

**28.** \$1.47

**29.** 100,000

**30.** 0.0036

### PRACTICE

**a.** 4 qt; 2 pt; 16 oz

**b.** >

**c.** 1000 mL

**d.** 24 pt

**e.** 64 oz

**f.** 2500 mL

**g.** 0.6 L

**h.** 4 gal 1 qt 1 pt 1 oz

**i.** 1 qt 14 oz

### PROBLEM SET 67

**1.** 8.34

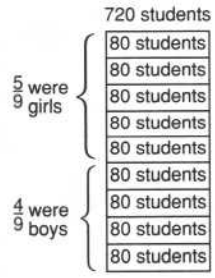
**2.** 98 small ships

**3.** \$8.75

**4.** 24¢

**5.** nine hundred forty-five thousandths

**6.** (a) 320 boys (b) $\frac{4}{5}$




**7.** $3 \times 10^8$

**8.** 100,000

**9.** 5000 mL

**10.** 300,000,000

**11.** $1\frac{1}{10}$

**12.** $1.358\overline{3}$

**13.** 420,000

**14.** 83 ft$^2$

**15.** 46 ft

**16.** 0.99

**17.** 0.99

**18.** $37\frac{1}{2}$

**19.** 32

**20.** 0

**21.** 5 gal 2 qt

**22.** 2 qt 1 pt 12 oz

**23.** 2500 mL

**24.** $\frac{11}{12}$

**25.** 20

**26.** $1\frac{1}{5}$

**27.** 14.26

**28.** 2.786

**29.** 2100

**30.** 0.168

### PRACTICE

**a.** $2.5 \times 10^{-7}$

**b.** $1 \times 10^{-9}$

**c.** $1.05 \times 10^{-4}$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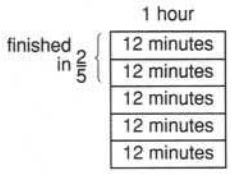
**d.** 0.00000045
**e.** 0.001
**f.** 0.0000125

### PROBLEM SET 68

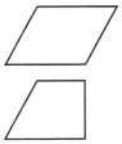
**1.** 189 riders
**2.** 100
**3.** \$123.90
**4.** \$0.26 per pint
**5.** (a) 24 minutes (b) 40%




**6.** (a) $1.86 \times 10^5$
(b) $4 \times 10^{-5}$
**7.** (a) 32.5 (b) 0.0000015
**8.** 2 liters
**9.** 0.14286
**10.** 160%
**11.** 13.75
**12.** (a) 0.05 (b) 95%
**13.** =
**14.** 18 yd
**15.** 12 $yd^2$
**16.** 11.6
**17.** 2.5
**18.** 12
**19.** 1394
**20.** 8
**21.** 1 yd 2 ft 10 in.
**22.** 3 gal 1 qt 1 oz
**23.** 3 pt
**24.** $21\frac{1}{3}$
**25.** $11\frac{3}{8}$
**26.** $1\frac{9}{10}$
**27.** 0.506
**28.** 8.275
**29.** 0.0018
**30.** 5000

### PRACTICE

**a.** false
**b.** true
**c.** true
**d.**
**e.**



**f.** parallelogram
**g.** trapezoid

### PROBLEM SET 69

**1.** $\frac{1}{6}$
**2.** one thousand, eight hundred seventy-five millionths
**3.** \$1.33
**4.** 196 numismatists
**5.** 91
**6.** =
**7.** (a) 80% (b) $\frac{1}{5}$
**8.** (a) $3.0 \times 10^{13}$
(b) $3.7 \times 10^{-6}$
**9.** (a) 80,000 (b) 0.000004
**10.** 8 quarts
**11.** (b) trapezoid
**12.** $\frac{1}{50}$
**13.** $49.\overline{36}$
**14.** 44 m
**15.** 90 $m^2$
**16.** 899
**17.** 0.3
**18.** 30
**19.** 9
**20.** 36
**21.** 5 wk 4 days 2 hr
**22.** 1 gal 1 qt 1 pt
**23.** 32 qt
**24.** $6\frac{1}{10}$
**25.** 400
**26.** $6\frac{3}{4}$
**27.** 0.001
**28.** 1887
**29.** 0.016
**30.** \$700

### PRACTICE

**a.** perimeter = 44 cm; area = 96 $cm^2$
**b.** perimeter = 46 cm; area = 120 $cm^2$
**c.** perimeter = 40 cm; area = 90 $cm^2$

### PROBLEM SET 70

**1.** \$0.28
**2.** $1\frac{1}{2}$ cups of brown sugar
**3.** 54.6 seconds
**4.** 9 miles per hour
**5.** fifty-six million, thirty-five thousand
**6.** (a) 70% (b) $\frac{3}{7}$
**7.** $1.05 \times 10^{-3}$
**8.** 302,000
**9.** 5280 ft
**10.** (a) parallelogram
(b) trapezoid
**11.** 24 $cm^2$
**12.** (a) obtuse (b) right
(c) acute
**13.** $166\frac{2}{3}\%$
**14.** 56 cm
**15.** 160 $cm^2$
**16.** 56
**17.** 1.4
**18.** 16.5
**19.** 109
**20.** 9999
**21.** 4 gal
**22.** 1 yd 5 in.
**23.** 2750 mL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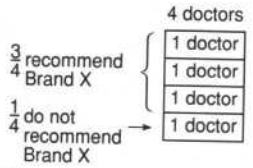
24. $7\frac{17}{24}$
25. 10
26. $16\frac{2}{3}$
27. 10.23
28. 0.0006
29. 0.0005
30. 0.0225

### PRACTICE

a. $0.\overline{6}$
b. $66\frac{2}{3}\%$
c. $1\frac{1}{10}$
d. 110%
e. $\frac{1}{25}$
f. 0.04

### PROBLEM SET 71

1. \$1
2. 2400 more times
3. 24
4. 160 brachiopods
5. 14.4 points
6. (a) 75% (b) $\frac{1}{4}$



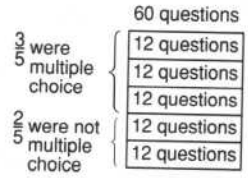

7. 0.2 meter
8. =
9. $3 \times 10^5$ km/sec
10. (a) 6,050,000
    (b) 0.00004
11. 31.25
12. (a) $1\frac{1}{5}$ (b) 120%
13. $2 \cdot 2 \cdot 2 \cdot 5 \cdot 5 \cdot 5 \cdot 5$
14. 112 in.
15. 720 in.$^2$
16. 0.34
17. 3.9
18. 55
19. 490
20. 2.97
21. 0.09
22. 1 ft 11 in.
23. 2 hr 1 min
24. 288 miles
25. $11\frac{7}{24}$
26. $2\frac{1}{2}$
27. $111\frac{1}{9}$
28. 0.025
29. \$20
30. 75.93

### PRACTICE

a. 29, 35, 41
b. 243, 729, 2187
c. 35
d. 5

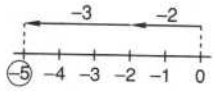
### PROBLEM SET 72

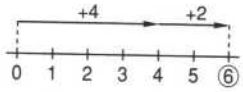
1. 14 kilometers
2. \$1.25
3. 37
4. (a) $\frac{1}{3}$ (b) $\frac{3}{4}$ (c) 25%
5. 123
6. (a) 36 questions
   (b) 40%

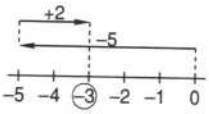


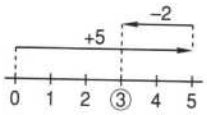

7. $1 \times 10^{-7}$
8. 15,000,000
9. =
10. 19
11. 5, 0, −5
12. (a) $0.1\overline{6}$ (b) $16\frac{2}{3}\%$
13. 8
14. (a) parallelogram
    (b) trapezoid
15. 720 cm$^2$
16. 10
17. 1.53
18. 0.15
19. 909
20. 0
21. 3 gal 1 qt
22. 18 hr 45 min
23. 10,560 ft
24. $6\frac{1}{12}$
25. $3\frac{1}{2}$
26. 5
27. 0.721
28. 900
29. 0.0575
30. 1000

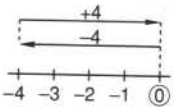
### PRACTICE

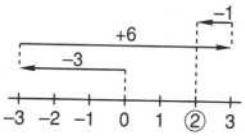
a.



b.



c.



d.



e.



f.




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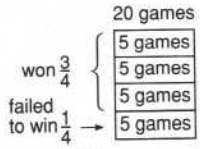
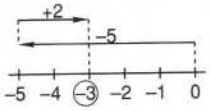
## PROBLEM SET 73

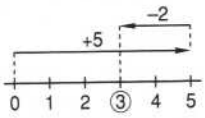
1. \$8.30
2. 5°F
3. 86°F
4. 216
5. 98 sonorous voices
6. (a) 15 games (b) 25%




7. $4 \times 10^{12}$
8. 3,670,000,000
9. 0.000001
10. 30 cm
11. (a) $\frac{3}{25}$ (b) 0.12
12. (a)




(b)



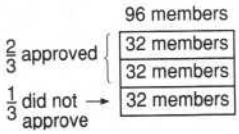

13. 20
14. 0.55
15. 1.2
16. $\frac{1}{12}$
17. 250 mm
18. 2025 mm$^2$
19. 10
20. 1
21. 5 yd 1 in.
22. 1 pt 10 oz
23. 125 mi
24. 1
25. $\frac{17}{18}$
26. $1\frac{9}{10}$
27. 0.04
28. \$1.17
29. 0.052
30. 0.003

## PRACTICE

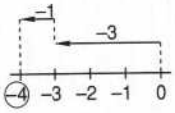
a. $56\frac{4}{5}$
b. $1\frac{2}{7}$
c. 87
d. 10.8

## PROBLEM SET 74

1. 1.2181
2. 100 boards
3. 432
4. (a) 20% (b) $\frac{4}{1}$
5. 84 inches
6. (a) $8 \times 10^{-8}$
   (b) $6.75 \times 10^{10}$
7. (a) 64 members
   (b) $33\frac{1}{3}\%$




8. $12\frac{3}{4}$
9. 4.55
10. >
11. (a) 0.125 (b) $12\frac{1}{2}\%$
12.



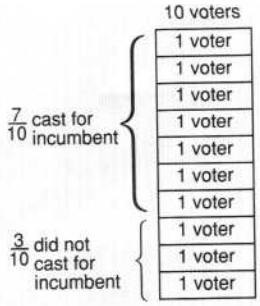

13. 36, 49, 64
14. $2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$
15. $\frac{5}{6}$
16. 0.013
17. 30
18. 48 ft$^2$
19. 36 ft
20. 33
21. 5 days 8 hr 42 min
22. 80
23. 1720 m
24. $72\frac{11}{24}$
25. $\frac{4}{15}$
26. 0.125
27. 16.975
28. 5.915
29. 0.0024
30. 0.003

## PRACTICE

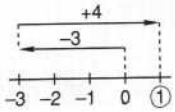
a. 3
b. 27
c. $\frac{1}{6}$

## PROBLEM SET 75

1. 2:40 p.m.
2. 188 miles
3. 23.5 miles per gallon
4. 2
5. 128 czarists
6. (a) 70% (b) $\frac{3}{10}$




7. $2\frac{7}{9}$
8. 1.41
9. 16,000,000; sixteen million
10. 1200 mL
11.




12. (a) $\frac{9}{10}$ (b) 90%
13. $\frac{1}{2}$
14. 22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**15.** 21 in.

**16.** 22 in.$^2$

**17.** 12

**18.** 4.4

**19.** 8

**20.** 22

**21.** 980 mm

**22.** 1 gal 3 qt 1 pt 14 oz

**23.** $20{,}640\ \frac{\text{m}}{\text{min}}$

**24.** $3\frac{1}{3}$

**25.** $9\frac{1}{6}$

**26.** 10

**27.** \$15

**28.** 0.0109

**29.** 0.000001

**30.** 1

### PRACTICE

**a.** right

**b.** obtuse

**c.** acute

**d.** scalene

**e.** equilateral

**f.** isosceles

**g.** 11 cm

### PROBLEM SET 76

**1.** 135 minutes

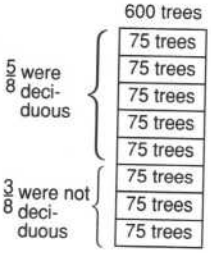
**2.** 50 stamps

**3.** 51 years

**4.** 55

**5.** (a) $\frac{7}{10}$ (b) $\frac{3}{7}$

**6.** (a) 375 trees (b) $37\frac{1}{2}\%$



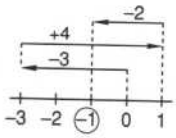

**7.** $191\frac{1}{4}$

**8.** $2.5 \times 10^{-2}$

**9.** 186,000; one hundred eighty-six thousand

**10.** <

**11.**




**12.** (a) 0.625 (b) $62\frac{1}{2}\%$

**13.** 13

**14.** $\frac{3}{4}, \frac{7}{8}, 1$

**15.** (a) $\Delta ZWY$ (b) $\Delta WYX$ (c) $\Delta ZWX$

**16.** 0.204

**17.** $\frac{15}{6}$ or $2\frac{1}{2}$

**18.** 1.6

**19.** 50

**20.** 19

**21.** 2 yd 1 ft $10\frac{1}{4}$ in.

**22.** 950 mL

**23.** $1\ \frac{\text{mi}}{\text{min}}$

**24.** $15\frac{9}{20}$

**25.** 1

**26.** $8\frac{3}{4}$

**27.** 29.58

**28.** \$21

**29.** 0.095

**30.** 0.1

### PRACTICE

**a.** −2

**b.** 76

**c.** 3

**d.** 10

### PROBLEM SET 77

**1.** \$27.50

**2.** 7

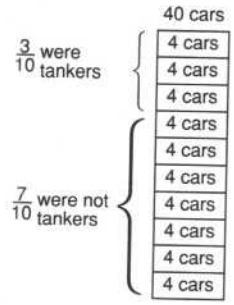
**3.** 27 favorable outcomes

**4.** 890 miles

**5.** 294

**6.** one hundred forty-nine million; six hundred thousand

**7.** (a) 12 tankers (b) 70%

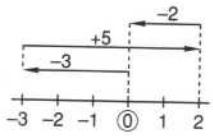



**8.** two thousandths

**9.** 50 min

**10.** $363.\overline{3}$

**11.**




**12.** (a) $1\frac{1}{4}$ (b) 1.25

**13.** 1

**14.** 21

**15.** (a) isosceles (b) 15 cm (c) $\Delta ABC$

**16.** $\frac{5}{12}$

**17.** 5

**18.** 3.5

**19.** 25

**20.** 22

**21.** 5 cm

**22.** 3 days 22 hr

**23.** $5\frac{\text{mi}}{\text{qt}}$

**24.** $11\frac{1}{18}$

**25.** 200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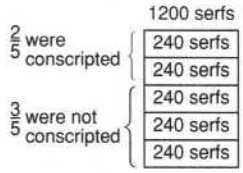
26. $5\frac{7}{9}$
27. 800
28. 10
29. 9.901
30. \$26

### PRACTICE

a. 40
b. −173
c. 4
d. 8
e. $1\frac{1}{2}$
f. −13.07

### PROBLEM SET 78

1. $1.25 \times 10^{12}$
2. \$1.45
3. 28
4. (a) $\frac{4}{9}$ (b) $\frac{5}{4}$
5. 2.02
6. (a) 480 serfs (b) 60%



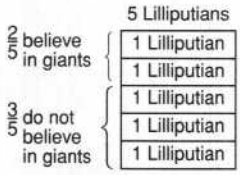

7. $55\frac{5}{9}$
8. sixteen million
9. seven millionths
10. (a) $16\frac{2}{7}$ (b) 16.29 (c) 16
11. (a) −77 (b) −28
12. (a) $2\frac{1}{2}$ (b) 250%
13. $3, 1\frac{1}{2}, \frac{3}{4}$
14. $1\frac{1}{6}$
15. 3.4 m
16. 0.52 $m^2$
17. $\frac{2}{3}$
18. 0.4
19. 5
20. 15
21. 7 gal 1 pt
22. 1200 mm
23. $65{,}280 \frac{\text{ft}}{\text{min}}$
24. 18
25. $1\frac{1}{6}$
26. $3\frac{1}{2}$
27. 0.091
28. 1
29. \$15.90
30. 1.5

### PRACTICE

a. 30 $cm^2$
b. 48 $cm^2$
c. 18 $cm^2$

### PROBLEM SET 79

1. 2,234,000 pennies
2. 327,000 pennies
3. 4 packages
4. 112
5. 450 ants
6. (a) $\frac{3}{5}$ (b) 24 Lilliputians



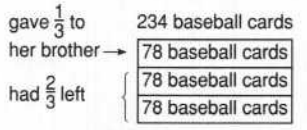

7. $4\frac{1}{2}$
8. 3325
9. (a) $4 \times 10^8$ (b) $7.8 \times 10^{-7}$
10. 1,700,000,000; one billion, seven hundred million
11. 150 min
12. (a) $\frac{17}{20}$ (b) 0.85
13. 0
14. $2 \cdot 2 \cdot 5 \cdot 5 \cdot 7 \cdot 7$
15. 0.3
16. (a) 300 $m^2$ (b) 150 $m^2$
17. 0.314
18. 1
19. 164
20. 162
21. 1620
22. 2 ft $9\frac{3}{4}$ in.
23. $12 \frac{\text{mi}}{\text{min}}$
24. $9\frac{1}{24}$
25. $\frac{1}{2}$
26. $1\frac{1}{4}$
27. 2.455
28. 0.4
29. \$50
30. \$25.20

### PRACTICE

a. 75
b. 1.17
c. 16

### PROBLEM SET 80

1. eighty-six ten-thousandths
2. 16 princes
3. (a) $\frac{7}{8}$ (b) $\frac{1}{7}$
4. $3\frac{3}{4}$
5. 21
6. (a) $33\frac{1}{3}\%$ (b) 156 cards





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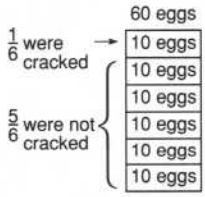
7. (a) $1 \times 10^{-5}$
   (b) $1 \times 10^{5}$
8. 0.000015; fifteen millionths
9. <
10. $\frac{7}{8}$
11. (a) $20.8\overline{3}$ (b) 21
12. (a) −200 (b) −7
13. (a) $0.\overline{2}$ (b) $22\frac{2}{9}\%$
14. 4
15. (a) 12 $cm^2$ (b) 12 $cm^2$
    (c) 12 $cm^2$
16. 0.23
17. $\frac{2}{5}$
18. 6
19. 9
20. 0
21. 175
22. 17 hr 44 min 15 sec
23. $12\ \frac{mi}{hr}$
24. $7\frac{1}{3}$
25. 135
26. $1\frac{1}{3}$
27. 36.513
28. 1.001
29. 8.5
30. 0.0004

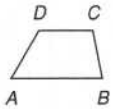
### PRACTICE

a. 45 clowns
b. 510 young people

### PROBLEM SET 81

1. (a) \$0.48 (b) \$3.84
2. 16,763,681
3. 352 big fish
4. $23.3\ \frac{\text{miles}}{\text{gallon}}$
5. 4320
6. $1.2 \times 10^{10}$
7. (a) 50 eggs (b) $\frac{1}{5}$




8. (a) 

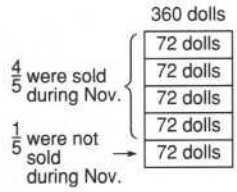
   (b) trapezoid
9. (a) 28 in. (b) 42 $in.^2$
10. 0.82
11. 48
12. 2.22
13. (a) −11 (b) −5 (c) 0
14. (a) $\frac{7}{20}$ (b) 35%
15. 950 mL
16. 31
17. 23
18. $52\frac{2}{7}$
19. 14
20. 2.2
21. 24
22. 2 yd 1 ft 4 in.
23. 2 days 21 hr 25 min
24. 5
25. 1.5
26. $11\frac{7}{20}$
27. $2\frac{5}{6}$
28. $1\frac{1}{5}$
29. 14
30. 51

### PRACTICE

a. triangular prism
b. cone
c. rectangular prism
d. 5
e. 9
f. 6
g.
h.
i.

### PROBLEM SET 82

1. (a) $\frac{3}{5}$ (b) $\frac{5}{4}$
2. $\frac{2}{3}$
3. \$5.08
4. (a) 88 points
   (b) 90.5 points
5. 150 diamonds
6. (a) 288 dolls (b) 20%




7.
   (a) 12 (b) 6 (c) 8
8. (a) 54 $m^2$ (b) 16 m
9. $AB = 1\frac{5}{8}$ inches;
   $AC = 3\frac{1}{4}$ inches;
   $BC = 1\frac{5}{8}$ inches
10. $2.5 \times 10^{-3}$
11. 18
12. 14.4
13. (a) −9 (b) 3
14. (a) $\frac{1}{25}$ (b) 0.04
15. 70 cm
16. 78
17. 7
18. 7900
19. 13
20. 2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**21.** 400
**22.** 145
**23.** 1 ft 9 in.
**24.** 10 mi
**25.** 5.84
**26.** 2
**27.** $3\frac{1}{12}$
**28.** 1
**29.** $2\frac{1}{12}$
**30.** 29

### PRACTICE

**a.** 15 lb 3 oz
**b.** 7 lb 12 oz
**c.** 2 lb
**d.** 4000 lb
**e.** 2400 g
**f.** 4 g

### PROBLEM SET 83

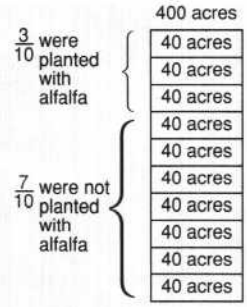
**1.** $14\frac{1}{2}$ pounds
**2.** (a) $7\frac{1}{2}$ miles per hour (b) 8 minutes
**3.** (a) \$2.97 (b) \$14.85
**4.** 323 sheep
**5.** 26
**6.** 45
**7.** (a) 60% (b) $\frac{2}{3}$
**8.** 5,200,000
**9.** (a) cube (b) cylinder (c) sphere
**10.** 160 mm
**11.** 1300 $mm^2$
**12.** 500 $mm^2$
**13.** 7.74
**14.** (a) 0.04 (b) 4%
**15.** 10,000 g
**16.** −3
**17.** −22
**18.** 9
**19.** 66
**20.** 0.77
**21.** $3\frac{1}{2}$
**22.** 35
**23.** 18 lb 3 oz
**24.** 4 gal 2 qt 1 pt
**25.** 500
**26.** 0
**27.** $1\frac{4}{5}$
**28.** $6\frac{2}{3}$
**29.** 7
**30.** 5

### PRACTICE

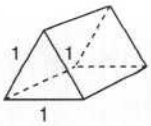
**a.** 150 cm
**b.** 5 ft
**c.** Answers will vary. Answers will vary due to the inaccuracies in the measuring process. However, with careful measurement answers should approximate 3.14.

### PROBLEM SET 84

**1.** 33%; \$6250
**2.** $12\frac{1}{2}$ miles
**3.** 0.08
**4.** 200 dimes
**5.** $9 \times 10^8$
**6.** (a) 30% (b) 280 acres




**7.** 12 students
**8.** 5 faces




**9.** 10 cm
**10.** (a) 336 $cm^2$ (b) 168 $cm^2$
**11.** 64 cm
**12.** 3150
**13.** 2
**14.** (a) $\frac{9}{20}$ (b) 45%
**15.** (a) 6 (b) 0
**16.** 1400 g
**17.** 1
**18.** 30,000,000
**19.** 0.8
**20.** 198
**21.** 20
**22.** $\frac{1}{4}$
**23.** 6 lb 3 oz
**24.** $36\frac{\text{in.}}{\text{yd}}$
**25.** 0.8
**26.** 0.032
**27.** $1\frac{1}{2}$
**28.** 11
**29.** 2
**30.** 5

### PRACTICE

**a.** 25.12 in.
**b.** 132 mm
**c.** $4\pi$ ft
**d.** 18.84 in.

### PROBLEM SET 85

**1.** 12 minutes
**2.** 1.7
**3.** 192 princes
**4.** 192 miles
**5.** 120 pages
**6.** 500 mm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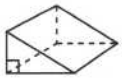
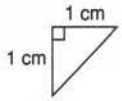
7. (a)  (b) 3
8. (a) 65.9 in. (b) 66 in.
9. (a) 24 $mm^2$ (b) 30 $mm^2$
10. $1\frac{7}{8}$ inches
11. $3.25 \times 10^{10}$
12. 50
13. 9
14. (a) $\frac{3}{40}$ (b) 0.075
15. (a) 11 (b) −9
16. 3000 mg
17. 6
18. (a) $133.\overline{3}$ (b) 133
19. $\frac{3}{4}$
20. 21
21. 1042
22. 9
23. 650
24. 32,000 $\frac{\text{oz}}{\text{ton}}$
25. 500
26. 9.899
27. $\frac{1}{8}$
28. $7\frac{1}{4}$
29. 12
30. 5

### PRACTICE

a. −5
b. −1
c. 1
d. −1
e. −13

### PROBLEM SET 86

1. 687 g
2. 20 hexagons
3. 6
4. (a) \$0.31 (b) \$31
5. (a) 12 miles per hour
   (b) 5 minutes per mile
6. 3 seconds
7. (a) 88 (b) 84 (c) 84
8. 9.1
9. (a) 12 cubes
   (b) rectangular prism
10. (a) 125.6 cm
    (b) $40\pi$ cm
11. 

12. $6 \times 10^8$
13. 300
14. 2
15. (a) 2 (b) −10
16. (a) 0.12 (b) 12%
17. 18 gallons
18. 61
19. 0.39
20. 261
21. 10
22. 0.15
23. 2 qt 15 oz
24. $\frac{\$0.20}{\text{min}}$
25. 320
26. 9.901
27. $\frac{3}{8}$
28. $10\frac{1}{8}$
29. 3
30. 21

### PRACTICE

a. 4.175
b. $\frac{5}{6}$
c. 0.35
d. $\frac{9}{10}$

### PROBLEM SET 87

1. 8.4
2. 175 lords
3. 14 pounds
4. 75 inches
5. 160 boys
6. $6 \times 10^{-6}$
7. (a) rectangular prism
   (b) cone (c) cylinder
8. 280
9. 100
10. (a) 88 cm
    (b) 175.84 cm
11. (a) 140 $cm^2$ (b) 20 $cm^2$
12. 100 $cm^2$
13. (a) 0 (b) −13
14. (a) $1\frac{3}{4}$ (b) 175%
15. 250 g
16. 3
17. 7.273
18. 13
19. 263
20. 1.88
21. 4.66
22. 9
23. 8 lb 3 oz
24. $\frac{\$1920}{\text{month}}$
25. 1.205
26. $5\frac{5}{8}$
27. 128
28. 1.25
29. $\frac{1}{24}$
30. $9\frac{1}{3}$

### PRACTICE

a. 744
b. 147
c. 13.58
d. 4.35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## PROBLEM SET 88

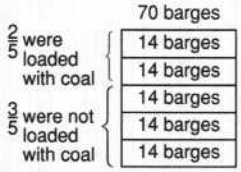
1. 118 lb
2. 5
3. 3 km
4. 30 students
5. $1.5 \times 10^6$
6. (a) 10% (b) $\frac{9}{10}$
7. 351 pounds
8. 36 cubes
9. (a) $200\pi$ mm
   (b) 628 mm
10. (a) 96 $cm^2$ (b) 24 $cm^2$
    (c) $\frac{1}{4}$
11. 400
12. $66\frac{2}{3}$
13. (a) $-4$ (b) 2
14. (a) $\frac{1}{100}$ (b) 0.01
15. 5000 pounds
16. 9
17. 10, 1, $\frac{1}{10}$
18. 407
19. 3.77
20. 9
21. 1.25
22. 55 min 52 sec
23. 128 $\frac{\text{oz}}{\text{gal}}$
24. 0.375
25. $2\frac{2}{5}$
26. 6.97
27. 0.21
28. $4\frac{19}{24}$
29. 15
30. 5

## PRACTICE

a. $1.6 \times 10^5$
b. $2.4 \times 10^{-6}$
c. $3 \times 10^6$
d. $7.5 \times 10^{-9}$

## PROBLEM SET 89

1. (a) 6.5 (b) 6.5 (c) 6.7
   (d) 1.4
2. 24 games
3. 15 minutes
4. (a) $1.5 \times 10^6$
   (b) $1.5 \times 10^4$
5. 28 barges



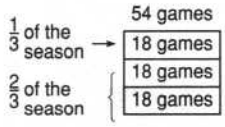

6. 126 cm
7. (a) sphere (b) cylinder
   (c) cone
8. (a) 21.98 cm (b) 22 cm
9. (a) $-3$ (b) $-6$
10. (a) 108 $mm^2$
    (b) 60 $mm^2$
11. $\frac{5}{9}$
12. 100
13. 10.5
14. (a) 0.15 (b) 15%
15. 256 oz
16. 16
17. 7
18. (a) $13.\overline{09}$ (b) 13
19. 124
20. $\frac{5}{16}$
21. 51
22. 14
23. 12 ft 3 in.
24. 21 $\frac{\text{km}}{\text{min}}$
25. 2.4
26. $7\frac{1}{3}$
27. 5.875
28. \$100
29. $6\frac{3}{4}$
30. $8\frac{3}{8}$

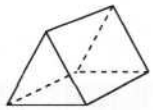
## PRACTICE

a. 52
b. 96
c. $\frac{2}{5}$
d. 4.6

## PROBLEM SET 90

1. 250 girls
2. 3.43
3. 30 cm
4. 44 $cm^2$
5. 28 $cm^2$
6. 3500 mg
7. 54 games




8. 60
9. 12
10. 11
11. \$30
12. 6
13. (a) $60\pi$ mm
    (b) 188.4 mm
14. (a) $\frac{3}{4}$ (b) 75%
15. 126
16. \$1.62
17.  9 edges
18. 22
19. $3.75 \times 10^{10}$
20. 27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**21.** 3.9
**22.** 32
**23.** 3.6
**24.** $1\frac{5}{12}$
**25.** 1 qt 1 pt 14 oz
**26.** $\frac{\$7.50}{\text{hour}}$
**27.** $\frac{15}{16}$
**28.** $3\frac{11}{12}$
**29.** 4.25
**30.** (a) −13 (b) −74

### PRACTICE

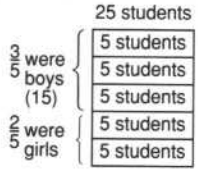
**a.** 72 cubes
**b.** 1000 1-cm cubes
**c.** 240 $ft^3$

### PROBLEM SET 91

**1.** 19 kilometers per hour
**2.** 98 cats
**3.** A little too large, because the diameter equals the circumference divided by π, which is more than 3. Therefore the diameter must be less than 200 cm.
**4.** (a) \$0.43 per pound (b) \$4.30
**5.** 0.58
**6.** (a) 141 hits (b) 25%
**7.** =
**8.** 60 1-cm cubes
**9.** (a) 2π in. (b) 3.14 in.
**10.** (a) $1.2 \times 10^{-5}$ (b) $1.2 \times 10^{-7}$
**11.** 0.85
**12.** 2 kg
**13.** 360
**14.** $16\frac{2}{3}$
**15.** (a) $\frac{7}{50}$ (b) 0.14
**16.** (a) 0 (b) −9
**17.** 0.02
**18.** 29,375
**19.** 5.5
**20.** 5.1
**21.** 4.8 or $4\frac{4}{5}$
**22.** 2.5
**23.** 3 lb 9 oz
**24.** $\frac{\$210}{\text{week}}$
**25.** 87.4
**26.** $10\frac{5}{12}$
**27.** 3
**28.** \$15.90
**29.** $\frac{3}{4}$
**30.** $8\frac{1}{3}$

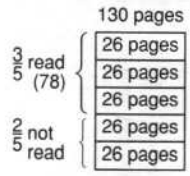
### PRACTICE

25 students




### PROBLEM SET 92

**1.** (a) \$0.24 per pound (b) \$2.88
**2.** 288 nautical miles
**3.** 86 percent
**4.** $1.1 \times 10^{10}$
**5.** 28
**6.** 88 new ones
**7.** (a) 130 pages (b) 52 pages




**8.** 18
**9.** 64 1-inch cubes
**10.** (a) 87.92 cm (b) 88 cm
**11.** (a) $2.5 \times 10^{7}$ (b) $2.5 \times 10^{-5}$
**12.** (a) $\frac{1}{10}$ (b) 10%
**13.** 28
**14.** 7
**15.** 8 vertices
**16.** (a) 36 cm (b) 48 $cm^2$
**17.** <
**18.** $10\frac{2}{3}$
**19.** 3.4 meters
**20.** 0.009
**21.** 20.65
**22.** 1.14
**23.** 66
**24.** 5
**25.** 1 ft 11 in.
**26.** 12,600 sec
**27.** $\frac{5}{9}$
**28.** $3\frac{2}{3}$
**29.** $1\frac{1}{6}$
**30.** (a) −4 (b) 1

### PRACTICE

**a.** 5 hours
**b.** $7\frac{1}{2}$ bales

### PROBLEM SET 93

**1.** 52 years
**2.** 7 points per game
**3.** 2500 milliliters
**4.** $\frac{7}{10}$
**5.** 441 herbivores
**6.** $31\frac{1}{2}$ pounds
**7.** 24
**8.** 63 in.

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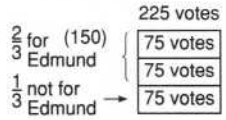
**9.** (a) 225 votes
(b) 75 votes




**10.** 480 in.$^3$

**11.** (a) $6 \times 10^5$
(b) $6 \times 10^{-7}$

**12.** 1.46

**13.** (a) 0.6 (b) 60%

**14.** \$18

**15.** $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 5$

**16.** (a) 48 in.$^2$ (b) 24 in.$^2$

**17.** (a) sphere
(b) triangular prism
(c) cylinder

**18.** 49, 64, 81

**19.** <

**20.** 0.76

**21.** $2\frac{5}{12}$

**22.** 160

**23.** 1

**24.** 4

**25.** 3 qt 1 pt

**26.** 880 yd

**27.** $\frac{4}{45}$

**28.** 1

**29.** 7.15

**30.** (a) −11 (b) 10

### PRACTICE

**a.** $\frac{8}{13}$

**b.** 0.25

**c.** 200

### PROBLEMSET 94

**1.** 36 pages

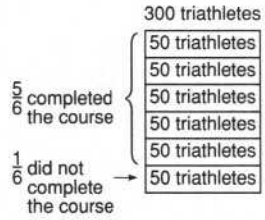
**2.** 1.5¢

**3.** 54 inches

**4** 630 hazelnuts

**5** \$2.24

**6.** (a) 250 triathletes (b) $\frac{5}{1}$




**7.** 40

**8.** 0.35

**9.** 300

**10.** 108

**11.** 27 in.$^3$

**12.** (a) 44 m (b) $14\pi$ m

**13.** (a) 3.5 (b) 350%

**14.** \$7

**15.** 36

**16.** $4.25 \times 10^8$

**17.** (a) parallelogram
(b) trapezoid

**18.** 0.0103, 0.013, 0.021, 0.1023

**19.** 63

**20.** $\frac{1}{6}$

**21.** $4\frac{3}{10}$

**22.** 0.046

**23.** 5.16

**24.** 12

**25.** 2 hr 49 min 45 sec

**26.** 86,400 $\frac{\text{sec}}{\text{day}}$

**27.** $7\frac{1}{2}$

**28.** 2

**29.** $15\frac{5}{6}$

**30.** (a) −34 (b) 19

### PRACTICE

**a.** −21

**b.** −32

**c.** 40

**d.** 24

**e.** −5

**f.** 9

**g.** −7

**h.** 5

### PROBLEM SET 95

**1.** 144 packages

**2.** 36 minutes

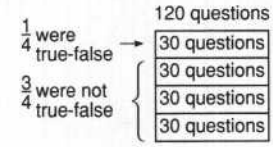
**3.** 7

**4.** 230 mm

**5.** 11,760 books

**6.** (a) $2.4 \times 10^{-4}$
(b) $2.4 \times 10^8$

**7.** (a) 120 questions
(b) 90 questions




**8.** 81

**9.** 60

**10.** 608

**11.** 0.7

**12.** (a) −4 (b) 6
(c) −27 (d) 56

**13.** 96 1-ft cubes

**14.** (a) 131.88 m (b) 132 m

**15.** (a) $2\frac{1}{2}$ (b) 250%

**16.** right; 24 cm$^2$

**17.** obtuse; 15 cm$^2$

**18.** acute; 12 cm$^2$

**19.** (a) pyramid
(b) cylinder (c) cone

**20.** <

**21.** $\frac{13}{24}$

**22.** $\frac{3}{8}$

**23.** 1.76

**24.** 0.28

**25.** 4 yd 1 ft 3 in.

**26.** 500 mm

**27.** 140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**28.** $\frac{15}{16}$

**29.** 3

**30.** (a) 0 (b) −28

### PRACTICE

**a.** 88 $cm^2$

**b.** 174 $cm^2$

**c.** 240 $cm^2$

### PROBLEM SET 96

**1.** 75 seconds

**2.** 8.3¢ per ounce

**3.** 1.5 kilometers

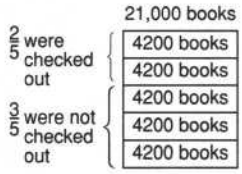
**4.** $\frac{4}{5}$

**5.** 20 years

**6.** (a) $1.25 \times 10^5$
(b) $1.25 \times 10^{-3}$

**7.** $7\frac{1}{2}$ hours

**8.** (a) 8400 books
(b) 12,600 books




**9.** 144

**10.** 50

**11.** $\frac{7}{16}$

**12.** 0.8

**13.** (a) −30 (b) −132
(c) 24 (d) 240

**14.** 3000 $cm^3$

**15.** $34\frac{1}{2}$ inches

**16.** 112 $in.^2$

**17.** (a) 76 cm (b) 376 $cm^2$

**18.** (a) $1\frac{1}{4}$ (b) 1.25

**19.** \$2.50

**20.** 3

**21.** 64

**22.** 22

**23.** 4.87

**24.** 78

**25.** 1 hr 24 min 32 sec

**26.** 3600 in.

**27.** 12

**28.** $4\frac{9}{20}$

**29.** 2.07

**30.** (a) −1 (b) −8

### PRACTICE

**a.** $\frac{3}{8}$

**b.** $14\frac{2}{5}$

**c.** $\frac{2}{3}$

**d.** $\frac{1}{12}$

### PROBLEM SET 97

**1.** 24 kilometers per hour

**2.** 8.12

**3.** 10 good guys

**4.** 200,000 cm

**5.** $\frac{1}{6}$

**6.** 64

**7.** 24 grams

**8.** 4

**9.** (a) 5 (b) −48
(c) −5 (d) 75

**10.** $30\pi$ cm

**11.** (a) 5 (b) 8 (c) 5

**12.** \$3.75

**13.** 45

**14.** $\frac{5}{12}$

**15.** 0.75

**16.** 6

**17.** (a) $0.8\overline{3}$ (b) $83\frac{1}{3}\%$

**18.** (a) 34 in. (b) 75 $in.^2$

**19.** right angle

**20.** $6 \times 10^6$

**21.** 121

**22.** 18

**23.** 2.5

**24.** $6\frac{2}{3}$

**25.** 12

**26.** 1600 lb

**27.** $2\frac{1}{2}$

**28.** 18.075

**29.** −10

**30.** −47

### PRACTICE

**a.** 60%

**b.** $33\frac{1}{3}\%$

**c.** 300

### PROBLEM SET 98

**1.** 245 coins

**2.** 40 questions

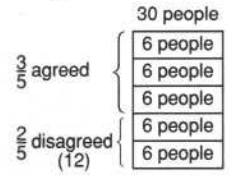
**3.** 85

**4.** (a) 80 (b) 25

**5.** (a) sphere (b) cylinder
(c) rectangular prism

**6.** 635 centimeters

**7.** (a) $\frac{2}{5}$ (b) 30 (c) 18




**8.** 250

**9.** 2400

**10.** 2000

**11.** 80%

**12.** (a) −125 (b) 75
(c) 50 (d) −15

**13.** (a) $\frac{1}{5}$ (b) 20%

**14.** \$0.90

**15.** (a) $\frac{1}{7}$ (b) 90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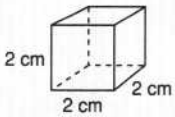
**16.** 96 $ft^2$

**17.** 

8 $cm^3$

**18.** $1.2 \times 10^{10}$

**19.** (a) $20\pi$ mm (b) 62.8 cm

**20.** 8.9

**21.** $10\frac{1}{3}$

**22.** 72

**23.** 1

**24.** 5

**25.** 6 gal 2 qt

**26.** 144 $in.^2$

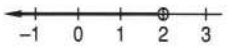
**27.** 12

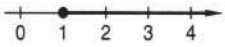
**28.** $1\frac{19}{20}$

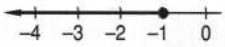
**29.** $1\frac{1}{3}$

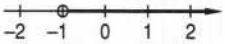
**30.** (a) −12 (b) −20

### PRACTICE

**a.** 


**b.** 


**c.** 


**d.** 


### PROBLEM SET 99

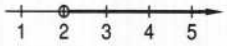
**1.** 10 cartons

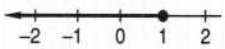
**2.** 94

**3.** $2\frac{5}{6}$

**4.** 63 monocotyledons

**5.** 66 millimeters

**6.** (a) 

(b) 


**7.** 1500 grams

**8.** 20 people

**9.** 60

**10.** 1000

**11.** 20

**12.** 80%

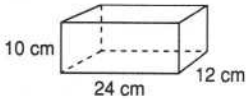
**13.** 0.0015

**14.** (a) −5 (b) −30
(c) −300 (d) 180

**15.** (a) $\frac{1}{2}$ (b) 0.5

**16.** $\frac{5}{6}$

**17.** 640 $mm^2$

**18.** 

volume = 2880 $cm^3$

**19.** 17

**20.** \$5.55

**21.** 1.55

**22.** 27

**23.** 69

**24.** 30

**25.** 1 ft 9 in.

**26.** 10,000 $cm^2$

**27.** $12\frac{1}{2}$

**28.** $1\frac{19}{20}$

**29.** 5.6

**30.** (a) −8 (b) 20

### PRACTICE

**a.** >

**b.** =

**c.** insufficient information

**d.** insufficient information (Both $x$ and $y$ could be zero.)

### PROBLEM SET 100

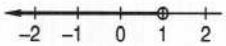
**1.** 26.8 students

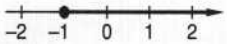
**2.** $9\frac{\text{kilometers}}{\text{liter}}$

**3.** 210 more winners

**4.** (a) $3.75 \times 10^{-5}$
(b) $3.75 \times 10^{7}$

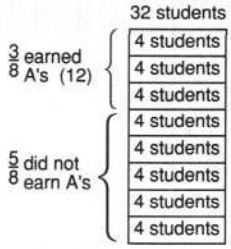
**5.** insufficient information ($x < y$ if both are positive; $x > y$ if both are negative)

**6.** (a) 

(b) 


**7.** 9 hours

**8.** (a) 20 students
(b) $62\frac{1}{2}\%$




**9.** 55

**10.** 85%

**11.** 18

**12.** 480

**13.** (a) −18 (b) −24
(c) −144 (d) 144

**14.** (a) 0.04 (b) 4%

**15.** \$5.04

**16.** $\frac{5}{8}$

**17.** (a) 38 in. (b) 94 $in.^2$

**18.** 72 cubic centimeters

**19.** (a) 3.14 m (b) $\pi$ m

**20.** (a) right (b) obtuse
(c) acute

**21.** 2.4

**22.** $2\frac{1}{2}$

**23.** $\frac{3}{5}$

**24.** 5

**25.** 29 min 54 sec

**26.** 9 $ft^2$

**27.** $40\frac{1}{2}$

**28.** $15\frac{5}{12}$

**29.** 2.5

**30.** 0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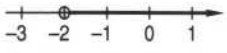
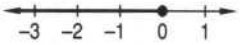
### PRACTICE

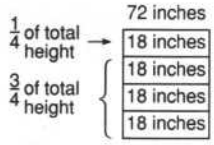
**a.** 90°
**b.** 50°
**c.** 115°
**d.** 65°
**e.** 130°
**f.** 23°

### PROBLEM SET 101

**1.** \$4.50
**2.** 5
**3.** insufficient information
**4.** 12 articles of clothing
**5.** 94 millimeters
**6.** 3 pints
**7.** (a) 

(b) 

**8.** 960 customers
**9.** (a) 72 inches (b) 6 feet

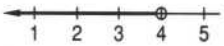


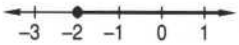

**10.** 1080
**11.** 70%
**12.** 16
**13.** 100
**14.** (a) −40 (b) 50
(c) −600 (d) 600
**15.** \$10
**16.** (a) $\frac{3}{10}$ (b) 30%
**17.** (a) $3 \times 10^7$
(b) $3 \times 10^{-5}$
**18.** 25 m$^2$
**19.** 125 in.$^3$
**20.** (a) 45° (b) 135°
(c) 30°
**21.** 24
**22.** 128
**23.** 1.81
**24.** 1
**25.** 2 lb 11 oz
**26.** 100 mm$^2$
**27.** $4\frac{1}{2}$
**28.** $\frac{11}{12}$
**29.** 10
**30.** −20

### PRACTICE

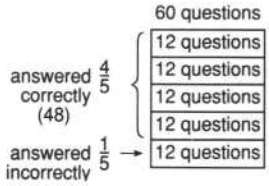
**a.** 70%
**b.** 180 pages

### PROBLEM SET 102

**1.** 86
**2.** 85
**3.** (a) 85 (b) 30
**4.** $6\frac{1}{2}$ inches
**5.** \$1.80
**6.** (a) 

(b) 

**7.** (a) 60 questions (b) $\frac{4}{1}$

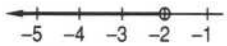



**8.** $1\frac{7}{8}$ inches
**9.** 1800 gleeps
**10.** 84
**11.** insufficient information ($m < n$ if both are positive; $m > n$ if both are negative)
**12.** (a) 2.25 (b) 225%
**13.** 30%
**14.** 0.8
**15.** $\frac{1}{6}$
**16.** 84%
**17.** 3200 acres
**18.** (a) 30° (b) 150°
(c) 125° (d) 70°
**19.** $\angle FOD$
**20.** 180 in.$^2$
**21.** 0
**22.** (a) $5.6 \times 10^8$
(b) $5.6 \times 10^{-6}$
**23.** 3.3
**24.** $1\frac{7}{8}$
**25.** 29
**26.** 4 days
**27.** 2
**28.** 7.15
**29.** (a) 108 (b) −20
**30.** (a) −2 (b) −45

### PRACTICE

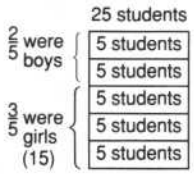
**a.** 50.24 cm$^2$
**b.** $16\pi$ cm$^2$
**c.** $50\frac{2}{7}$ cm$^2$

### PROBLEM SET 103

**1.** 20 ft$^3$
**2.** 6'2"
**3.** 960 students
**4.** $5\frac{1}{2}$ ft
**5.** (a) 

(b)

**6.** 375 times
**7.** (a) 25 students (b) $\frac{3}{2}$




**8.** 13
**9.** 52%
**10.** <
**11.** (a) 43.96 cm (b) 44 cm
**12.** (a) 153.86 cm$^2$
(b) 154 cm$^2$
**13.** (a) $1\frac{3}{5}$ (b) 160%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**14.** \$2

**15.** (a) $1.2 \times 10^6$
(b) $1.2 \times 10^{-4}$

**16.** 112 students

**17.** 120 pages

**18.** 59 in.$^2$

**19.** (a) 120° (b) 110°
(c) $\angle BOD$ or $\angle AOB$

**20.** $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 17$

**21.** $1, \frac{1}{3}$

**22.** $1 \times 10^8$

**23.** 48

**24.** 0.26

**25.** 1

**26.** 2 gal 2 qt 1 pt

**27.** 0.1

**28.** $4\frac{1}{6}$

**29.** (a) $-6$ (b) 24

**30.** (a) $-5$ (b) 50

### PRACTICE

**a.** $5.88 \times 10^9$

**b.** $1.5 \times 10^{13}$

**c.** $8.4 \times 10^{-10}$

**d.** $4.2 \times 10^{-6}$

### PROBLEM SET 104

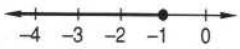
**1.** $1\frac{1}{2}\ \frac{\text{cents}}{\text{ounce}}$ more

**2.** 50 were good apples

**3.** 84

**4.** \$15

**5.** 288 pence

**6.** 


**7.** 48

**8.** 17

**9.** 24 points

**10.** insufficient information

**11.** (a) $28\pi$ cm
(b) 88 cm

**12.** (a) $196\pi$ cm$^2$
(b) 616 cm$^2$

**13.** 1000 cm$^3$

**14.** (a) $2\frac{1}{2}$ (b) 2.5

**15.** \$0.51

**16.** 20%

**17.** 60 boats

**18.** $\frac{1}{3}$

**19.** 900 m$^2$

**20.** (a) 90°
(b) 45°

**21.** 10

**22.** (a) $1.8 \times 10^{10}$
(b) $4.8 \times 10^{-9}$

**23.** $6\frac{1}{6}$

**24.** 3.6

**25.** 55

**26.** 1 yd 2 ft 11 in.

**27.** 1

**28.** 3.03

**29.** (a) 4 (b) $-60$

**30.** (a) $-2$ (b) $-19$

### PRACTICE

**a.** 72 cm

**b.** 68 cm

**c.** 68 cm

**d.** 15 cm

### PROBLEM SET 105

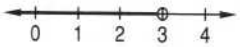
**1.** 11°F

**2.** Thursday

**3.** 3°F

**4.** (a) 93.5 (b) 95
(c) 100 (d) 20

**5.** 147 sailboats

**6.** 


**7.** \$3.50

**8.** 60 members

**9.** 0

**10.** =

**11.** (a) 18.84 in.
(b) 28.26 in.$^2$

**12.** 480 cm

**13.** 6 faces

**14.** (a) 1.8 (b) 180%

**15.** \$5.40

**16.** $\frac{1}{8}$

**17.** 90 pigeons

**18.** 120 gnomes

**19.** (a) 44 in. (b) 120 in.$^2$

**20.** (a) 75° (b) 105°
(c) 135°

**21.** $-2, 0$

**22.** $4.5 \times 10^3$

**23.** 9.95

**24.** 54

**25.** 11

**26.** 955 mm

**27.** 9.6

**28.** $2\frac{4}{15}$

**29.** (a) 4 (b) $-30$

**30.** 60

### PRACTICE

**a.** 7

**b.** 31

**c.** 46

**d.**

| $x$ | $y$ |
|---|---|
| 3 | 8 |
| 1 | 2 |
| 0 | $-1$ |

**e.**

| $x$ | $y$ |
|---|---|
| 6 | 3 |
| 0 | 0 |
| 8 | 4 |

**f.**

| $x$ | $y$ |
|---|---|
| 7 | 1 |
| 1 | 7 |
| 4 | 4 |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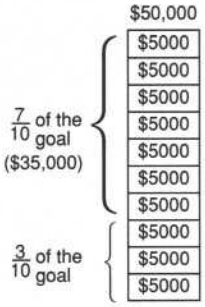
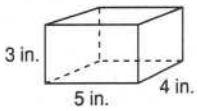
## PROBLEM SET 106

1. 6 games
2. (a) 84 (b) 85
   (c) 90 (d) 30
3. 121 dandelions
4. 980 milliliters
5.

6. 12 miles
7. (a) $50,000 (b) 30%




8. insufficient information
9. 25.12 m
10. 50.24 $m^2$
11. $\frac{7}{20}$
12. 

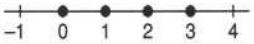
60 $in.^3$
13. (a) 0.025 (b) $2\frac{1}{2}\%$
14. $0.06
15. 50
16. $\frac{1}{12}$
17. 95%
18. 140 children
19. (a) parallelogram
    (b) 57 cm (c) 192 $cm^2$
20. (a) 90° (b) 180°
    (c) 30° (d) 150°
21.

| $x$ | $y$ |
|---|---|
| 5 | 9 |
| 3 | 5 |
| 1 | 1 |

22. $3 \times 10^6$
23. 11
24. $\frac{5}{12}$
25. 6
26. 29 min 55 sec
27. $\frac{4}{5}$
28. 23.75
29. –7
30. –21

### PRACTICE

a.

b. 

c. false
d. true

## PROBLEM SET 107

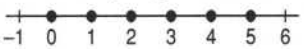
1. $8.88
2. 56 rookies
3. (a) 213 lb (b) 213 lb
   (c) 217 lb (d) 49 lb
4. 48 pecks
5. 52 miles per hour
6.

7. 45
8. (a) 1620 students
   (b) 10%
9. 1
10. insufficient information
11. (a) 24π in. (b) 144π $in.^2$
12. 24
13. (a) 5 (b) 9 (c) 6
14. (a) $\frac{9}{10}$ (b) 90%
15. $5.20
16. $40
17. 16 seeds
18. 75
19. (a) trapezoid
    (b) 90 mm (c) 450 $mm^2$
20. (a) 120° (b) 165°
21.

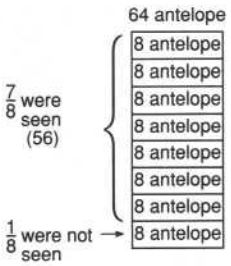
| $x$ | $y$ |
|---|---|
| 4 | 13 |
| 7 | 22 |
| 0 | 1 |

22. $1.44 \times 10^{-3}$
23. 64
24. 2.54
25. 2
26. 10 lb
27. $8\frac{7}{12}$
28. 400
29. 32
30. –34

## PROBLEM SET 108

1. 1125 miles
2. 9 ft
3. $\frac{3}{4}$
4. 18'
5. 26 miles per gallon
6. 

7. 540 feet
8. (a) 64 antelope
   (b) $12\frac{1}{2}\%$




9. 11
10. 440 mm
11. 15,400 $mm^2$
12. 48 $in.^3$
13. (a) $\frac{1}{8}$ (b) 0.125
14. 1
15. $30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16. 5000 meters
17. $87\frac{1}{2}\%$
18. 94 $cm^2$
19. (a) 30° (b) 60° (c) 120°
20. $\frac{2}{3}$
21.

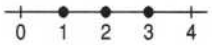
| $x$ | $y$ |
|---|---|
| 3 | 8 |
| 4 | 6 |
| 12 | 2 |

22. $8.4 \times 10^{-12}$
23. 17.57
24. 14.4
25. 2.4
26. 925 g
27. 4000
28. 21.325
29. 15
30. –19

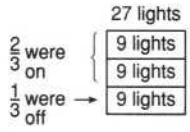
### PRACTICE

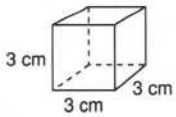
a. 180 inches
b. 5400 seconds
c. 135 $ft^2$
d. 2000 $mm^2$

### PROBLEM SET 109

1. $19.50
2. 78
3. 864 $in.^2$
4. 10 brass instruments
5. 

6. $9
7. (a) 9 lights (b) $66\frac{2}{3}\%$




8. 4
9. <
10. (a) 188.4 ft (b) 2826 $ft^2$
11. 25%
12. 

27 $cm^3$
13. 75
14. (a) $\frac{1}{8}$ (b) $12\frac{1}{2}\%$
15. 48
16. 75%
17. 875
18. 96
19. (a) trapezoid (b) 140 mm (c) 900 $mm^2$
20.

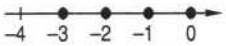
| $x$ | $y$ |
|---|---|
| 10 | 5 |
| 7 | 2 |
| 5 | 0 |

21. $3.6 \times 10^{-13}$
22. $14\frac{1}{3}$
23. 108
24. (a) 30° (b) 135°
25. 48
26. 1 ft 9 in.
27. 0.006
28. $5\frac{1}{18}$
29. –1
30. –9

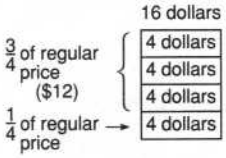
### PRACTICE

a. 35°
b. 145°
c. 35°
d. 55°

### PROBLEM SET 110

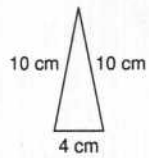
1. 120 seconds or 2 minutes
2. 16 bears
3. 5400 $cm^3$
4. 0.393
5. 2 $yd^2$
6. 

7. (a) $16 (b) 75%




8. (a) 55° (b) 125° (c) 55° (d) 55°
9. 132 in.
10. $\frac{11}{12}$
11. 4
12. <
13. (a) 0.875 (b) $87\frac{1}{2}\%$
14. 50
15. 1350 customers
16. $8
17. 10%
18. 480 $mm^2$
19. 30°
20.

| $x$ | $y$ |
|---|---|
| 12 | 4 |
| 9 | 3 |
| 18 | 6 |

21. $1 \times 10^{-7}$
22. 

24 cm
23. 162
24. 7.74
25. 1
26. 44 min 15 sec
27. 18
28. $7\frac{5}{6}$
29. –27
30. 1

### PRACTICE

a. 32
b. 140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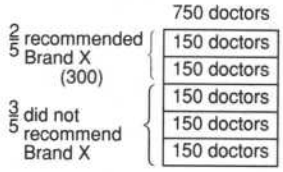
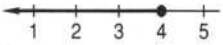
c. $\frac{12}{5}$

d. $\frac{27}{40}$

### PROBLEM SET 111

1. ninety-eight hundredths
2. (a) $8\frac{1}{2}$ (b) 8.5 (c) 8 (d) 4
3. 0.5¢
4. $\frac{11}{34}$
5. 48
6. \$40
7. 200 citizens
8. 80%
9. 3600 in.
10. (a) 750 doctors (b) 450 doctors




11. 10
12. >
13. 9 in.$^2$
14. (a) $1\frac{3}{4}$ (b) 175%
15. \$19.50
16. $4.8 \times 10^{-2}$
17. 288 in.$^3$
18. 314 mm
19. 7850 mm$^2$
20. (a) 25° (b) 17° (c) 115°
21. $13\frac{1}{3}$
22. 40
23. 

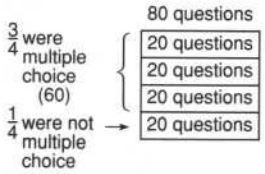
24. 9
25. 0.78
26. 9100
27. 1900 pounds
28. 1.9
29. 23
30. −25

### PRACTICE

a. −1
b. −13
c. −6
d. −4
e. −16

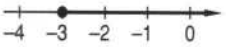
### PROBLEM SET 112

1. 89.2
2. nine billion, twenty million
3. 52 miles per hour
4. 45 laborers
5. \$14.25
6. \$32.40
7. 50 people
8. 50
9. 25 ft$^2$
10. (a) 80 questions (b) 25%




11. −7
12. insufficient information
13. (a) trapezoid (b) 60 mm (c) 210 mm$^2$
14. (a) $1.\overline{6}$ (b) $166\frac{2}{3}\%$
15. 10
16. $1.2 \times 10^{-10}$
17. (a) 5 (b) 8 (c) 5
18. (a) 25.12 cm (b) 50.24 cm$^2$
19.

| $x$ | $y$ |
|---|---|
| 2 | −1 |
| 3 | 1 |
| 5 | 5 |

20. (a) 60° (b) 60° (c) 55°
21. $66\frac{2}{3}\%$
22. 

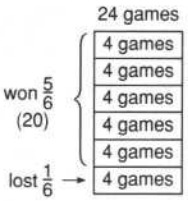
23. 20 mm
24. 9.75
25. $\frac{9}{4}$
26. 5
27. $1920 \frac{\text{ft}}{\text{min}}$
28. 8
29. 2.5
30. (a) $-8\frac{1}{2}$ (b) −5

### PRACTICE

a. \$2.58
b. \$39.47
c. \$10.97

### PROBLEM SET 113

1. (a) 11.9 (b) 11.8 and 11.9 (c) 0.7
2. \$22.50
3. 10 eggs
4. 72 words
5. 25 students
6. \$14.40
7. 40%
8. 24 pt
9. (a) 24 games (b) $\frac{5}{1}$




10. −3
11. <
12. 84 cm$^2$
13. (a) \$19.50 (b) \$344.50
14. $3.2 \times 10^7$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**15.** (a) $\frac{1}{50}$ (b) 2%

**16.** \$15.60

**17.** 64 in.$^3$

**18.** $18\pi$ cm

**19.** $81\pi$ cm$^2$

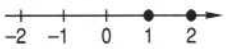
**20.**

| $x$ | $y$ |
|---|---|
| 5 | 16 |
| 3 | 10 |
| 0 | 1 |

**21.** (a) $0.13\overline{6}$ (b) 0.137

**22.** 60°

**23.**




**24.**

rectangle

**25.** 28

**26.** 8.99

**27.** 43

**28.** 26 min 45 sec

**29.** 16

**30.** –14

### PRACTICE

**a.** 84

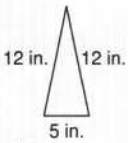
**b.** 24

### PROBLEM SET 114

**1.** 3

**2.** $2\frac{8}{15}$

**3.**




perimeter = 29 inches

**4.** 3150 adults

**5.** 4

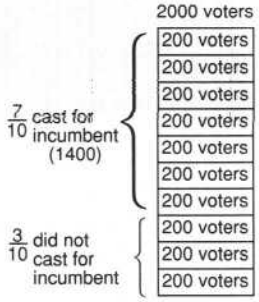
**6.** 8 people

**7.** \$40

**8.** 50

**9.** 100 m$^2$

**10.** (a) 2000 voters (b) 30%




**11.** 3

**12.** <

**13.** 625 cm$^2$

**14.** \$75.22

**15.** $1.05 \times 10^{12}$

**16.** (a) $\frac{1}{3}$ (b) $0.\overline{3}$

**17.** 105

**18.** \$190.80

**19.** 72 ft$^3$

**20.** (a) 44 m (b) 154 m$^2$

**21.**

| $x$ | $y$ |
|---|---|
| 2 | 6 |
| –1 | –3 |
| 5 | 15 |

**22.** (a) 56° (b) 34°
(c) 56°

**23.**

**24.** $A = 0.03$; $B = 0.12$

**25.** 43.2

**26.** 3

**27.** 4

**28.** 11 lb

**29.** 90

**30.** 7

### PRACTICE

**a.** \$17.15

**b.** 50 students

**c.** \$30

### PROBLEM SET 115

**1.** 1

**2.** 95

**3.** 8 miles per hour

**4.** $\frac{7}{9}$

**5.** \$9

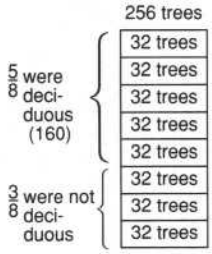
**6.** 408,000

**7.** 64¢

**8.** 80%

**9.** 10,000 mm$^2$

**10.** (a) 256 trees
(b) 96 trees




**11.** –16

**12.** =

**13.** 45 cm$^2$

**14.** (a) \$10.77 (b) \$190.27

**15.** $2.4 \times 10^8$

**16.** (a) $2.\overline{3}$ (b) $233\frac{1}{3}\%$

**17.** \$942.50

**18.** 150

**19.** (a) 2 (b) 3

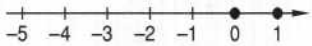
**20.** 75 inches

**21.**

| $x$ | $y$ |
|---|---|
| 6 | 43 |
| 3 | 22 |
| –2 | –13 |

**22.** 80°

**23.**




**24.**

parallelogram

**25.** 21

**26.** 5.05

**27.** 18

**28.** 900 mL

**29.** $3\frac{1}{6}$

**30.** 10



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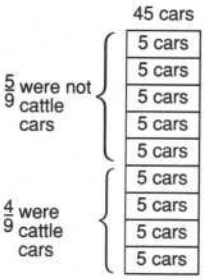
### PRACTICE

**a.** 3
**b.** 6
**c.** 18
**d.** 36
**e.** 4
**f.** 8

### PROBLEM SET 116

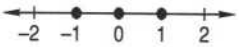
**1.** 24 kilometers per hour
**2.** (a) 9 (b) 37
**3.** 250 blue marbles
**4.** 2250 pterodactyls
**5.** \$18
**6.** \$32
**7.** 125%
**8.** 10,080 min
**9.** (a) 20 cattle cars
(b) $55\frac{5}{9}\%$




**10.** >
**11.** 7
**12.** \$11.76
**13.** (a) 44 in. (b) 120 in.$^2$
**14.** (a) $\frac{2}{25}$ (b) 8%
**15.** 432
**16.** $4.8 \times 10^5$
**17.** 1000 cm$^3$
**18.** 314 cm$^2$
**19.** 62.8 cm
**20.**

| $x$ | $y$ |
|---|---|
| 1 | 5 |
| 0 | 3 |
| −2 | −1 |

**21.** 160
**22.**



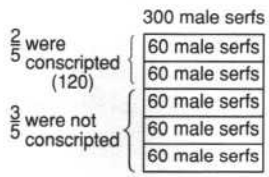

**23.** (a) 40° (b) 40°
(c) 50°
**24.** 0.87
**25.** $\frac{7}{3}$
**26.** 15
**27.** 40
**28.** 30
**29.** $11\frac{7}{12}$
**30.** (a) −90 (b) −7

### PRACTICE

**a.** $\frac{1}{2}$
**b.** $\frac{1}{4}$
**c.** 0
**d.** 1
**e.** $\frac{1}{4}$
**f.** $\frac{3}{4}$

### PROBLEM SET 117

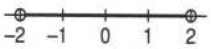
**1.** $1.12 \times 10^{10}$
**2.** 56 miles per hour
**3.** 10-pound box;
\$0.14 per pound more
**4.** $\frac{1}{2}$
**5.** 20 games
**6.** 63
**7.** 288
**8.** .325
**9.** (a) 1728 in.$^2$
(b) 1,000,000 mm
**10.** (a) 300 serfs
(b) 180 serfs




**11.** (a) $\frac{1}{2}$ (b) 0
**12.** −11
**13.** 9 ft$^2$
**14.** (a) \$942.50
(b) \$15,442.50
**15.** (a) $\frac{2}{3}$ (b) $0.\overline{6}$
**16.** \$15
**17.** $1.6 \times 10^{11}$
**18.** 96 blocks
**19.** 42 in.$^2$
**20.** $65.\overline{45}$
**21.**

| $x$ | $y$ |
|---|---|
| 3 | 3 |
| 0 | −12 |
| −1 | −17 |

**22.**




**23.** (a) 30° (b) 135°
**24.** $\frac{1}{4}$ in.
**25.** $\frac{11}{3}$
**26.** $\frac{1}{6}$
**27.** 20
**28.** 1 ft 11 in.
**29.** $2\frac{1}{8}$
**30.** (a) 2 (b) 25

### PRACTICE

**a.** 288 cm$^3$
**b.** 360 cm$^3$
**c.** $90\pi$ cm$^3$
**d.** 230 cm$^3$
**e.** $10\pi$ cm$^3$

### PROBLEM SET 118

**1.** \$3.85
**2.** 150
**3.** $\frac{1}{6}$
**4.** \$26

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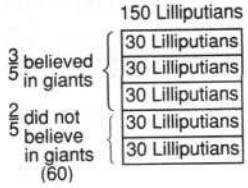
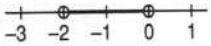
5. $\frac{1}{3}$
6. \$24
7. \$5.07
8. \$3
9. 10 $cm^2$
10. (a) 150 Lilliputians
    (b) 90 Lilliputians




11. insufficient information
12. 10
13. (a) $\frac{1}{2}$ (b) 1
14. 30,000 $mm^3$
15. 282.6 $cm^3$
16. \$7.37
17. (a) 2.75 (b) 275%
18. \$2.34
19. $3.2 \times 10^{-1}$
20.

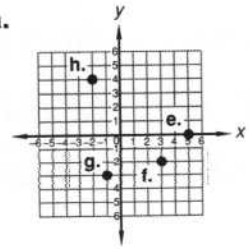
| $x$ | $y$ |
|---|---|
| 6 | 4 |
| 4 | 3 |
| −2 | 0 |

21. $20\frac{5}{6}$
22. (a) 35° (b) 55°
    (c) 15°
23. 

24. 1.54
25. 8
26. 12
27. 2
28. 30
29. $\frac{1}{3}$
30. (a) 2 (b) −20

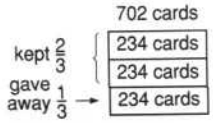
## PRACTICE

a. (−4, −3)
b. (0, −5)
c. (3, −4)
d. (0, 0)
e. – h.




## PROBLEM SET 119

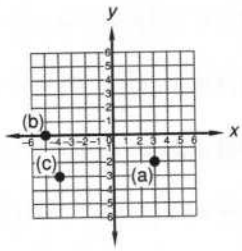
1. 0.04
2. (a) 90 (b) 30
3. 9 miles per hour
4. 1,000,000 $m^2$
5. $\frac{2}{5}$
6. 15 minutes
7. 50
8. \$27
9. 40
10. (a) 702 cards
    (b) 468 cards




11. >
12. (a) $\frac{1}{13}$ (b) $\frac{1}{4}$
13. 36 $cm^2$
14. 54 $in.^3$
15. 84.78 $in.^3$
16. (a) \$2.34 (b) \$38.34
17. (a) $\frac{3}{20}$ (b) 15%
18. 32
19. $4.8 \times 10^{-3}$
20.

| $x$ | $y$ |
|---|---|
| 6 | 3 |
| 0 | −1 |
| −3 | −3 |

21. 42°
22.




23. $M(1, 3)$; $N(-3, 2)$; $P(-1, -2)$
24. 20
25. 0.9
26. 0
27. $15\frac{mi}{hr}$
28. $\frac{7}{8}$
29. 8.7
30. 4

## PRACTICE

a. 24°
b. 120°
c. 42°
d. 55°
e. 15°
f. 45°
g. 145°

## PROBLEM SET 120

1. \$255 per ton
2. 27
3. 5 tanks
4. $\frac{2}{3}$
5. 145 dollars
6. 75
7. 150 customers per day
8. 120%
9. 12,000 $cm^2$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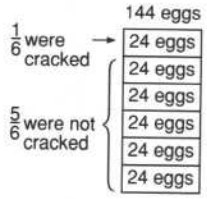
**10.** (a) 144 eggs (b) $83\frac{1}{3}\%$




**11.** >

**12.** $3\frac{1}{2}$

**13.** 81 in.$^2$

**14.** (a) $\frac{1}{4}$ (b) $\frac{3}{4}$

**15.** (a) 27 cm$^3$ (b) 60 cm$^3$

**16.** \$310.30

**17.** (a) $\frac{3}{80}$ (b) 0.0375

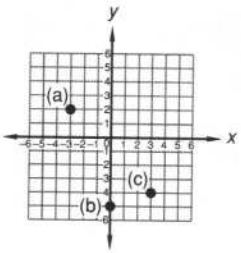
**18.** \$8

**19.** $2.4 \times 10^{-4}$

**20.** (a) $12\pi$ m (b) $36\pi$ m$^2$

**21.** (a) 90° (b) 150° (c) 48°

**22.**




**23.** $R(0, 4)$; $S(-4, 0)$; $T(0, -4)$

**24.** 4

**25.** 8

**26.** 68

**27.** 4 yd 1 in.

**28.** 6.2

**29.** $1\frac{1}{2}$

**30.** −22

### PRACTICE

**a.** Corresponding angles: $\angle W$ and $\angle R$, $\angle Y$ and $\angle Q$, $\angle X$ and $\angle P$; Corresponding sides: $\overline{YW}$ and $\overline{QR}$, $\overline{WX}$ and $\overline{RP}$, $\overline{XY}$ and $\overline{PQ}$

**b.** 8

## PROBLEM SET 121

**1.** \$0.51

**2.** $1.7 \times 10^{12}$

**3.** (a) 90 (b) 90 (c) 20

**4.** 2 miles

**5.** 5632 yards

**6.** 16 square units

**7.** 27 inches

**8.** 300 leeks

**9.** 16

**10.** $66\frac{2}{3}\%$

**11.** 2.4

**12.** \$2100

**13.** 1.91

**14.** (a) $3\frac{1}{4}$ (b) 325%

**15.** <

**16.** $3.24 \times 10^5$

**17.** (a) 62.8 mm (b) 314 mm$^2$

**18.** 80 ft$^2$

**19.** (a) 2 m$^3$ (b) 3.14 m$^3$

**20.** (a) 35° (b) 55° (c) 65°

**21.** 8 cm

**22.** 360 inches

**23.** 300,000

**24.** 9.9

**25.** 8

**26.** 4

**27.** $440\frac{\text{yd}}{\text{min}}$

**28.** $8\frac{11}{20}$

**29.** $\frac{5}{6}$

**30.** $-2\frac{1}{3}$

### PRACTICE

**a.** 12 ft

**b.** 18 inches

**c.** 21

**d.** 6

## PROBLEM SET 122

**1.** \$36

**2.** (a) $\frac{1}{3}$ (b) 0

**3.** 13 points

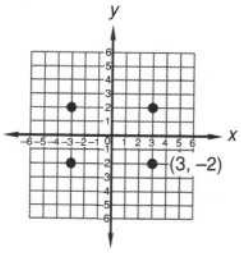
**4.** 20.5 miles per gallon

**5.** 49.2 miles per hour

**6.** \$12.50

**7.** 100

**8.** (3, −2)




**9.** $\frac{1}{3}$

**10.** 81

**11.** 16%

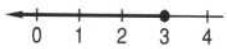
**12.** \$24

**13.** 150

**14.** 100 students

**15.** $\frac{3}{4}$ inch

**16.**




**17.** (a) $\frac{7}{500}$ (b) 0.014

**18.** $7 \times 10^{-2}$

**19.**

| $x$ | $y$ |
|---|---|
| 3 | −6 |
| 0 | 0 |
| −2 | 4 |

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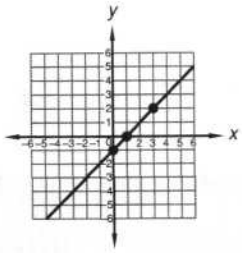
**20.** (a) 6.28 ft (b) 3.14 $ft^2$
**21.** 40°
**22.** $x = 12$; 96 $in.^2$
**23.** 20
**24.** 39
**25.** 530
**26.** 10
**27.** 3 qt 1 pt
**28.** 0.0125
**29.** $6\frac{5}{6}$
**30.** 3

### PRACTICE

**a.** 10
**b.** 15

### PROBLEM SET 123

**1.** \$2.25
**2.** $2.48 \times 10^{-3}$
**3.** (a) 30.5 (b) 31 (c) 31 (d) 2
**4.** 1¢
**5.** \$360
**6.** 10 ounces
**7.** 450 stalagmites
**8.** 200
**9.** $33\frac{1}{3}\%$
**10.**



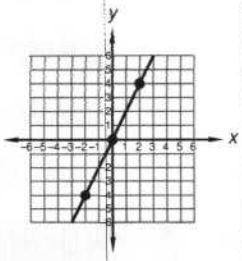

**11.** \$2.72
**12.** 9 $units^2$
**13.** 480 in. = 40 feet
**14.** (a) $1.\overline{3}$ (b) $133\frac{1}{3}\%$
**15.** $30\frac{5}{12}$
**16.** $7.29 \times 10^5$
**17.** 1
**18.** 12
**19.** 3140 $cm^3$
**20.** (a) 42° (b) 38° (c) 52°
**21.** 9 inches
**22.** 200,000
**23.** 0.09
**24.** 15
**25.** 51
**26.** 28
**27.** 12
**28.** 100
**29.** −2
**30.** $10{,}080 \frac{\text{min}}{\text{week}}$

### PRACTICE

**a.** 2 and 3
**b.** 8 and 9
**c.** 26 and 27
**d.** supplementary
**e.** complementary
**f.** 130°

### PROBLEM SET 124

**1.** \$10.52
**2.** $\frac{2}{5}$
**3.** 5.5
**4.** $7\frac{1}{2}$ hours
**5.** 6 hours 40 minutes
**6.** 24
**7.** 50 winners
**8.** 5000
**9.** 200%
**10.** \$2.60
**11.**




**12.** $-2, \sqrt{2}, 2, 2^2$
**13.** 500
**14.** $2\frac{1}{2}$ inches
**15.** insufficient information
**16.** (a) $\frac{18}{25}$ (b) 0.72
**17.** $2.7 \times 10^{10}$
**18.** (a) 6 and 7 (b) 4 and 5
**19.** (a) 44 in. (b) 154 $in.^2$
**20.** 8
**21.** 36 $cm^3$
**22.** 125.6 $cm^3$
**23.** $a = 132°$; $b = 48°$; $c = 42°$
**24.** 14
**25.** 1.1
**26.** 10
**27.** 1650 lb
**28.** 40
**29.** 5
**30.** −24

### PRACTICE

**a.** −120
**b.** 120
**c.** −8
**d.** 81
**e.** 81
**f.** −1

### PROBLEM SET 125

**1.** \$3.75
**2.** 69
**3.** (a) 85 (b) 90
**4.** 512 km per hour
**5.** \$43.75
**6.** 1600 meters
**7.** $\frac{2}{3}$
**8.** 5
**9.** \$125
**10.** 1.5
**11.** 80%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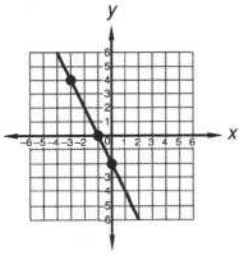
12. \$18
13. >
14. 1080 inches = 90 feet
15.

16. (a) $1\frac{3}{4}$ (b) 175%
17. $3.84 \times 10^{-3}$
18. (a) 56° (b) 34°
19. 9
20. (a) 6.28 ft (b) 3.14 $ft^2$
21. 50°
22. c. $\sqrt{150}$
23. 54 $units^3$
24. 84.78 $units^3$
25. $\frac{3}{2}$
26. 120
27. $\frac{3}{5}$
28. $5\frac{1}{3}$
29. (a) 120 (b) −72
30. (a) 1 (b) −9

### PRACTICE

(a) 29.42 cm (b) 44.13 $cm^2$

### PROBLEM SET 126

1. \$5
2. $\frac{1}{2}$
3. 90
4. 1.5¢
5. 5 hours
6. 54
7. 184 crawfish
8. 75%
9. 27
10. 

11. 125%
12. 80%
13. (a) $\frac{11}{500}$ (b) 0.022
14. $1\frac{1}{4}$ hours
15. <
16. $3.24 \times 10^5$
17. 32.13 $cm^2$
18. 21.42 cm
19. 1728 $in.^3$
20. 150°
21. 49°
22. $6\frac{1}{2}$
23. 5
24. 16
25. 2.05
26. 30
27. 2 lb 15 oz
28. 3
29. $\frac{4}{9}$
30. 12

### PRACTICE

192 $m^2$

### PROBLEM SET 127

1. \$22.50
2. $1.91 \times 10^{10}$
3. 0.51
4. 6
5. \$55.25
6. \$18.60
7. 1100 yards
8. 63 Tories
9. 5%
10. 10
11. $\frac{2}{5}$
12. \$42
13. 5
14. <
15. 20 inches
16. (a) $1\frac{7}{10}$ (b) 170%
17. $30.\overline{30}$
18. $2.56 \times 10^{-13}$
19. 81.4 m
20.

| $x$ | $y$ |
|---|---|
| 3 | −7 |
| −2 | 3 |
| 0 | −1 |

21. 150 $mm^2$
22. 3140 $cm^3$
23. 30°
24. 4
25. 8
26. 1.3
27. $\frac{4}{5}$
28. $32\frac{7}{12}$
29. 4 yd 1 ft 1 in.
30. −17

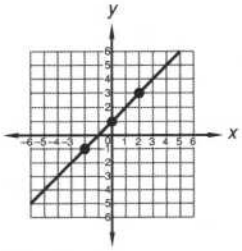
### PRACTICE

a. $x = b + a$

b. $w = \frac{y}{x}$

c. $b = \frac{A}{h}$

### PROBLEM SET 128

1. \$4.63
2. $\frac{1}{3}$
3. 17.5¢ per ounce
4. 93
5. 

6. 36 minutes
7. \$48.76

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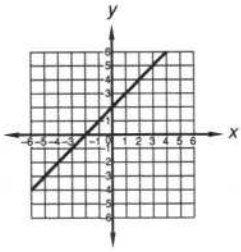
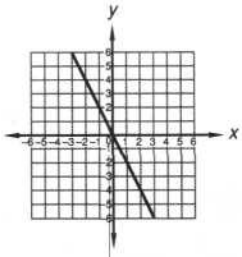
8. 90
9. $\frac{2}{2}, \sqrt{2}, 2, 2^2$
10. 36 visitors
11. 99
12. 3.2
13. 64 students
14. (a) $1\frac{1}{20}$ (b) 1.05
15.

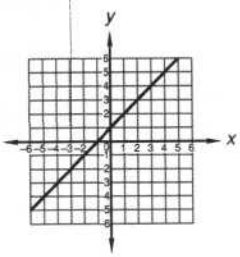
16. 0.083
17. $2.88 \times 10^{-15}$
18. 0
19. 269 $mm^2$
20. 84 $cm^2$
21. 31.4 $in.^3$
22. 40°
23. $x = d - c$
24. $x = \frac{b}{a}$
25. $\frac{1}{2}$
26. 60
27. 12
28. 1900 pounds
29. $\frac{7}{12}$
30. −29

## PRACTICE

a. 

b. 

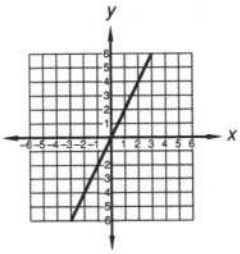
## PROBLEM SET 129

1. \$14
2. twenty-five billion
3. (a) 11 (b) 16
4. 12 miles
5. 24 units
6. 30 inches
7. 100 earthworms
8. 48
9. 240%
10. 75
11. \$17,874
12. $\frac{3}{4}$
13. (a) $0.8\overline{3}$ (b) $83\frac{1}{3}\%$
14. insufficient information
15. $1.62 \times 10^5$
16. 14 and 15
17. 
18. 85.25 $cm^2$
19. 160 $in.^2$
20. 502.4 $cm^3$
21. 30°
22. 20,000 $cm^2$
23. (a) $x = z + y$
    (b) $x = \frac{w}{y}$
24. 4.5
25. $\frac{1}{3}$
26. 67
27. 1 ft 7 in.
28. $8\frac{1}{3}$
29. 3.85
30. −21

## PRACTICE

a. 5
b. 10
c. −40

## PROBLEM SET 130

1. \$1.80
2. $1 \times 10^{-4}$
3. median = 8.5;
   mode = 8;
   4, 7, 8, 8, 8, 9, 9, 10, 12, 15
4. $\frac{1}{13}$
5. \$160
6. 750 pounds
7. 420 beans
8. 20
9. 25,000
10. 8%
11. \$117
12. 10 $units^2$
13. 180 $ft^2$
14. (a) 1.25 (b) 125%
15. $2.24 \times 10^{-2}$
16. 30.48
17. 
18. 20.28 in.
19. 600 $in.^2$
20. 392.5 $cm^3$
21. 30°
22. 15 cm
23. 8 cm
24. 11.2
25. 21
26. 25
27. 9 lb 2 oz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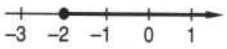
28. $1\frac{11}{12}$
29. 1
30. 39

PRACTICE

a. \$630
b. \$5175

PROBLEM SET 131

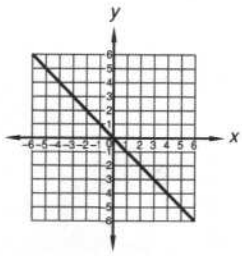
1. \$1.08
2. 3
3. 25
4. 3.5 miles
5. \$12.25
6. 18 hours
7. 20
8. 250%
9. 36
10. 250
11. 5
12. \$80
13. 5 inches
14. 8 and 9
15. (a) $1\frac{1}{4}$ (b) 125%
16. 

17. $5.67 \times 10^5$
18. $\frac{3}{5}$
19. \$1800
20. 4
21. 6
22. 960 in.$^3$
23. 110°
24. 168
25. 12
26. 10
27. $1\frac{\text{mile}}{\text{min}}$
28. $9\frac{2}{3}$
29. $7\frac{1}{5}$
30. 1

PRACTICE

a. $\frac{1}{16}$
b. $\frac{1}{64}$

PROBLEM SET 132

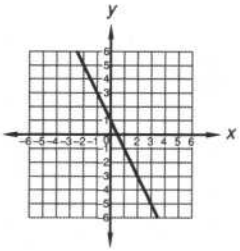
1. \$3720
2. 5
3. median = 90; mode = 95
4. 80 kilometers per hour
5. \$42
6. 1600 meters
7. $\frac{3}{2}$
8. 13
9. \$64
10. 7.2
11. 80%
12. \$1.50
13. $\frac{1}{16}$
14. \$180
15. (a) 0.625 (b) 62.5%
16. $1.2 \times 10^5$
17. 300,000 grams
18. $t = \frac{d}{r}$
19. 

20. 91.4 cm
21. 468 ft$^2$
22. $\frac{1}{6}$
23. 6
24. 7.5
25. 9
26. 23
27. 9 ft$^2$
28. $1\frac{5}{12}$
29. $\frac{5}{6}$
30. −110

PRACTICE

a. 50 cm$^3$
b. 113.04 cm$^3$

PROBLEM SET 133

1. \$18
2. $9.02 \times 10^9$
3. 0.94
4. \$4.80; \$5.50; \$0.70
5. \$54.25
6. 1100 yards
7. $\frac{1}{16}$
8. 5%
9. 5
10. \$1200
11. \$9.60
12. 6 units$^2$
13. 864 in.$^2$
14. 3 inches
15. (a) $\frac{1}{2}$ (b) 50%
16. $4.41 \times 10^4$
17. 20 yards
18. (a) $h = \frac{2A}{b}$ (b) 4
19. 

20. 16,000 m$^3$
21. 6280 cm$^3$

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**22.** (a) 60° (b) 60° (b) 30°

**23.** 12 cm

**24.** 4.8

**25.** 20

**26.** 15

**27.** $22\frac{\text{ft}}{\text{sec}}$

**28.** $\frac{7}{12}$

**29.** $1\frac{5}{23}$

**30.** 4

### PRACTICE

**a.** 20%

**b.** 2 to 3

**c.** 50%

**d.** 1 to 1

### PROBLEM SET 134

**1.** \$62.06

**2.** 96

**3.** (a) $\frac{4}{9}$ (b) $33\frac{1}{3}\%$ (c) 7 to 2

**4.** $7\frac{1}{2}$¢

**5.** \$200

**6.** 10 students

**7.** 2500 cars

**8.** 12 rainy days

**9.** \$288

**10.** 40%

**11.** (a) 26 units$^2$ (b) 22 units

**12.** $-6, 0.6, \sqrt{6}, 6^2$

**13.** (a) 1.8 (b) 180%

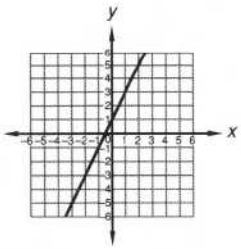
**14.** $1 \times 10^{-14}$

**15.** $0.0\overline{18}$

**16.** 30.48 cm

**17.** (a) $d = \frac{C}{\pi}$ (b) 20

**18.**




**19.** 27.42 cm

**20.** 54 ft$^2$

**21.** 235.5 m$^3$

**22.** (a) 50° (b) 40° (c) 80°

**23.** 8000 cm$^3$

**24.** 9

**25.** 3.6

**26.** 86

**27.** 950 g

**28.** 1

**29.** $1\frac{1}{12}$

**30.** 31

### PRACTICE

**a.** 2 kg

**b.** 3000 cm$^3$

**c.** 1000 mL

**d.** 2 liters

### PROBLEM SET 135

**1.** \$420

**2.** (a) $\frac{1}{4}$ (b) 25% (c) 1 to 3

**3.** $448\ \frac{\text{mi}}{\text{day}}$

**4.** $1\frac{1}{2}$¢

**5.** 25 minutes

**6.** 70 guinea pigs

**7.** 40

**8.** $33\frac{1}{3}\%$

**9.** $\frac{3}{8}$

**10.** (a) 24 units$^2$ (b) 24 units

**11.** 10 kg

**12.** (a) $\frac{7}{8}$ (b) $87\frac{1}{2}\%$

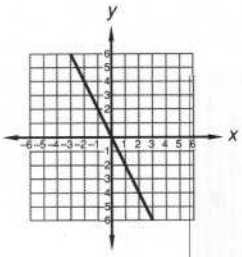
**13.** <

**14.** $5.12 \times 10^{-1}$

**15.** 91.44 cm

**16.** (a) $b = \frac{2A}{h}$ (b) 8

**17.**




**18.** 29.72 mm$^2$

**19.** 60,000 cm$^2$

**20.** 12,560 in.$^3$

**21.** (a) 55° (b) 35° (c) 55°

**22.** 8 cm

**23.** 72 in.$^3$

**24.** 17

**25.** 14

**26.** 7

**27.** 2 yd 11 in.

**28.** 7.5

**29.** $17\frac{1}{8}$

**30.** −20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### SUPPLEMENTAL PRACTICE FOR LESSON 5

1. 1, 2, 3, 4, 6, 9
2. 1, 2, 3, 4, 5, 6, 8, 9, 10
3. 1, 2, 5, 7, 10
4. 1, 2, 3, 6
5. 1, 2, 3, 4, 5, 6, 8, 9, 10
6. 1, 2, 5, 10
7. 1, 2, 3, 4, 5, 6, 8, 10
8. 1, 2, 4, 5, 7, 10
9. 1, 2, 3, 5, 6, 9, 10
10. 1, 2, 3, 5, 6, 10
11. 1, 2, 4, 5, 8, 10
12. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

### SUPPLEMENTAL PRACTICE FOR LESSON 16

1. $\frac{3}{4}$
2. $\frac{1}{3}$
3. $\frac{3}{8}$
4. $\frac{2}{3}$
5. $\frac{4}{5}$
6. $\frac{1}{2}$
7. $\frac{2}{3}$
8. $\frac{4}{5}$
9. $3\frac{5}{6}$
10. $6\frac{3}{4}$
11. $8\frac{3}{5}$
12. $4\frac{9}{16}$

### SUPPLEMENTAL PRACTICE FOR LESSON 22

1. $3 \times 3 \times 3 \times 3$
2. $2 \times 2 \times 3 \times 5 \times 5$
3. $2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5$
4. $5 \times 5 \times 5 \times 5$
5. $2 \times 3 \times 3 \times 5 \times 5$
6. $2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5$
7. $2 \times 2 \times 2 \times 5 \times 11$
8. $2 \times 3 \times 5 \times 5 \times 5$
9. $2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5$
10. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
11. $2 \times 2 \times 3 \times 5 \times 13$
12. $2 \times 2 \times 5 \times 7 \times 11$

### SUPPLEMENTAL PRACTICE FOR LESSON 23

1. $2\frac{1}{2}$
2. $3\frac{1}{2}$
3. $2\frac{1}{2}$
4. $3\frac{3}{5}$
5. $6\frac{2}{3}$
6. $3\frac{1}{5}$
7. $4\frac{1}{6}$
8. $4\frac{1}{2}$
9. $4\frac{2}{3}$
10. $5\frac{1}{3}$
11. $11\frac{1}{2}$
12. $10\frac{2}{5}$

### SUPPLEMENTAL PRACTICE FOR LESSON 26

1. $8\frac{2}{5}$
2. $8\frac{3}{4}$
3. 6
4. $9\frac{1}{2}$
5. $12\frac{1}{2}$
6. $11\frac{1}{3}$
7. $4\frac{3}{4}$
8. $1\frac{3}{4}$
9. $3\frac{2}{5}$
10. $3\frac{2}{3}$
11. $2\frac{3}{5}$
12. $3\frac{1}{3}$

### SUPPLEMENTAL PRACTICE FOR LESSON 30

1. $1\frac{1}{2}$
2. 7
3. 6
4. $18\frac{2}{3}$
5. 2
6. $3\frac{3}{5}$
7. $1\frac{1}{6}$
8. $3\frac{2}{3}$
9. $\frac{9}{16}$
10. $1\frac{19}{21}$
11. $1\frac{2}{3}$
12. $\frac{5}{28}$


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### SUPPLEMENTAL PRACTICE FOR LESSON 35

1. $\frac{9}{10}$
2. $4\frac{1}{3}$
3. $1\frac{5}{8}$
4. $1\frac{7}{12}$
5. $6\frac{4}{15}$
6. $1\frac{19}{24}$
7. $\frac{1}{8}$
8. $2\frac{1}{3}$
9. $3\frac{5}{12}$
10. 0
11. $3\frac{4}{15}$
12. $3\frac{5}{12}$

### SUPPLEMENTAL PRACTICE FOR LESSON 37

1. Sixteen and one hundred twenty-five thousandths
2. Five and three hundredths
3. One hundred five and one hundred five thousandths
4. One thousandth
5. One hundred sixty and one hundred sixty-six thousandths
6. Four thousand and three hundred twenty-one thousandths
7. 0.123
8. 100.023
9. 120.003
10. 0.05
11. 20.09
12. 29.5
13. 1000.212
14. 1200.012

### SUPPLEMENTAL PRACTICE FOR LESSON 38

1. 23
2. 164
3. 87
4. 12.83
5. 6.02
6. 0.11
7. 0.083
8. 0.455
9. 3.142
10. 300
11. 283.57
12. 130

### SUPPLEMENTAL PRACTICE FOR LESSON 40

1. 50.94
2. 2.2
3. 9.544
4. 34.12
5. 283.135
6. 11.11
7. 7.827
8. 1.13
9. 2.179
10. 5.24
11. 0.081
12. 0.063

### SUPPLEMENTAL PRACTICE FOR LESSON 42

1. 64 cm
2. 58 cm
3. 82 cm
4. 86 cm

### SUPPLEMENTAL PRACTICE FOR LESSON 48

1. $\frac{12}{25}$
2. $3\frac{3}{4}$
3. $\frac{1}{8}$
4. $12\frac{3}{5}$
5. $\frac{1}{40}$
6. $1\frac{2}{25}$
7. 0.625
8. $0.\overline{3}$
9. 2.4
10. $6.1\overline{6}$
11. 0.55
12. $5.\overline{5}$

### SUPPLEMENTAL PRACTICE FOR LESSON 50

1. 0.3
2. 240
3. 45
4. 6.25
5. 312.5
6. 240
7. 430
8. 12.5
9. 5
10. 1.8
11. 200
12. 25

### SUPPLEMENTAL PRACTICE FOR LESSON 52

1. 64
2. 64
3. 27
4. 100,000
5. 17
6. 9
7. 64


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8. 225
9. 10
10. 8
11. 625
12. 500

### SUPPLEMENTAL PRACTICE FOR LESSON 58

1. 3 ft 4 in.
2. 3 min 20 sec
3. 4 ft 9 in.
4. 3 hr 30 min
5. 5 yd 1 ft 3 in.
6. 8 hr 4 min 11 sec

### SUPPLEMENTAL PRACTICE FOR LESSON 60

1. 124 $cm^2$
2. 104 $cm^2$
3. 228 $cm^2$
4. 76 $cm^2$

### SUPPLEMENTAL PRACTICE FOR LESSON 66

1. 1 ft 9 in.
2. 6 min 45 sec
3. 3 yd 10 in.
4. 44 min 20 sec
5. 6 yd 2 ft 7 in.
6. 28 min 47 sec

### SUPPLEMENTAL PRACTICE FOR LESSON 71

1. $0.8\overline{3}$
2. $83\frac{1}{3}\%$
3. $1\frac{1}{5}$
4. 120%
5. $\frac{2}{25}$
6. 0.08
7. 1.6
8. 160%
9. $\frac{3}{40}$
10. $7\frac{1}{2}\%$
11. $1\frac{1}{4}$
12. 1.25

### SUPPLEMENTAL PRACTICE FOR LESSON 75

1. 52
2. 29
3. 46
4. $\frac{3}{8}$
5. 0.55
6. −2

### SUPPLEMENTAL PRACTICE FOR LESSON 78

1. 18
2. −41
3. −3
4. 13
5. −23
6. 26
7. 0
8. 5
9. $-5\frac{3}{4}$
10. $1\frac{1}{2}$
11. −1.67
12. −6.7

### SUPPLEMENTAL PRACTICE FOR LESSON 79

1. 96 $cm^2$
2. 150 $cm^2$
3. 24 $cm^2$
4. 120 $cm^2$
5. 35 $cm^2$
6. 108 $cm^2$

### SUPPLEMENTAL PRACTICE FOR LESSON 80

1. 125
2. 2
3. 12
4. 27
5. 65
6. 50
7. 3.84
8. 48
9. 16.8
10. 12
11. 56
12. 56

### SUPPLEMENTAL PRACTICE FOR LESSON 85

1. 125.6 cm
2. 44 cm
3. $12\pi$ cm
4. 31.4 cm
5. 88 cm
6. $15\pi$ cm

### SUPPLEMENTAL PRACTICE FOR LESSON 86

1. 5
2. 8
3. 23
4. −12
5. −2
6. 2
7. 5
8. 3
9. 9
10. 11
11. 4
12. −8

### SUPPLEMENTAL PRACTICE FOR LESSON 89

1. $1.5 \times 10^6$
2. $4.8 \times 10^{-7}$
3. $2 \times 10^6$


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4. $7.2 \times 10^{-5}$
5. $1.25 \times 10^{11}$
6. $2.25 \times 10^{-5}$
7. $1.75 \times 10^{11}$
8. $3.75 \times 10^{-9}$

### SUPPLEMENTAL PRACTICE FOR LESSON 96

1. 94 $cm^2$
2. 108 $cm^2$
3. 160 $cm^2$
4. 168 $cm^2$

### SUPPLEMENTAL PRACTICE FOR LESSON 97

1. $\frac{5}{8}$
2. 16
3. $\frac{1}{6}$
4. 6
5. $\frac{1}{15}$
6. $\frac{7}{8}$
7. $\frac{5}{6}$
8. $\frac{1}{30}$
9. 40%
10. $66\frac{2}{3}\%$
11. 20%
12. $16\frac{2}{3}\%$

### SUPPLEMENTAL PRACTICE FOR LESSON 103

1. 1256 $cm^2$
2. 616 $cm^2$
3. $16\pi$ $cm^2$
4. 314 $cm^2$
5. 154 $cm^2$
6. $64\pi$ $cm^2$

### SUPPLEMENTAL PRACTICE FOR LESSON 104

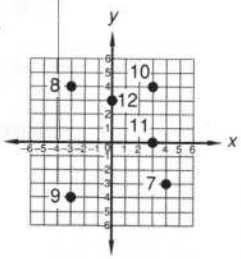
1. $3.6 \times 10^{11}$
2. $1.8 \times 10^{10}$
3. $1 \times 10^{13}$
4. $1.05 \times 10^{21}$
5. $8 \times 10^{-11}$
6. $2.4 \times 10^{-11}$
7. $1.3 \times 10^{-11}$
8. $1.12 \times 10^{-11}$
9. $2.4 \times 10^{5}$
10. $2.1 \times 10^{-3}$
11. $1.12 \times 10^{3}$
12. $3 \times 10^{-1}$

### SUPPLEMENTAL PRACTICE FOR LESSON 110

1. $2 \times 10^{4}$
2. $2 \times 10^{-3}$
3. $1.8 \times 10^{-6}$
4. $4 \times 10^{3}$
5. $3 \times 10^{4}$
6. $7.5 \times 10^{1}$
7. $6 \times 10^{-4}$
8. $5 \times 10^{-5}$
9. $3 \times 10^{-5}$
10. $1.5 \times 10^{5}$
11. $7 \times 10^{3}$
12. $8 \times 10^{-5}$

### SUPPLEMENTAL PRACTICE FOR LESSON 119

1. (3, 2)
2. (−2, 3)
3. (−2, −3)
4. (3, −2)
5. (−3, 0)
6. (0, −2)
7. – 12.





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