

STUDENTS
MOVING FROM
ALGEBRA 1
TO GEOMETRY

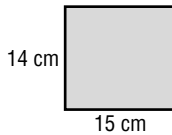


3-8 Practice***Using Formulas***

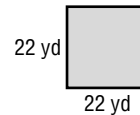
1. **AIR TRAVEL** What is the rate, in miles per hour, of a plane that travels 1680 miles in 3 hours?
2. **TRAVEL** A train is traveling at 54 miles per hour. How long will it take to go 378 miles?
3. **SWIMMING** What is the rate, in feet per second, of a swimmer who crosses a 164-foot-long pool in 41 seconds?
4. **BALLOONING** A balloon is caught in a wind traveling at 25 feet per second. If the wind is constant, how long will it take the balloon to travel 1000 feet?

Find the perimeter and area of each rectangle.

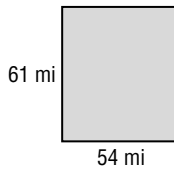
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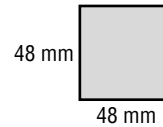
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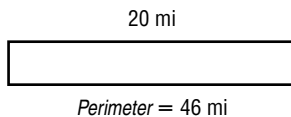
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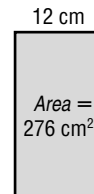
9. a rectangle that is 92 meters long and 18 meters wide
10. a rectangle that is 30 inches long and 29 inches wide

Find the missing dimension in each rectangle.

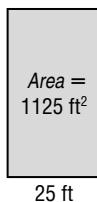
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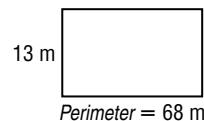
12.



13.



14.



15. **GEOMETRY** The area of a rectangle is 1260 square inches. Its length is 36 inches. Find the width.

5-2 Practice***Rational Numbers*****Write each number as a fraction.**

1. 29

2. 0

3. $3\frac{7}{8}$

4. -47

5. $-5\frac{6}{7}$

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

7. $-7\frac{2}{15}$

8. $10\frac{2}{9}$

Write each decimal as a fraction or mixed number in simplest form.

9. 0.32

10. 0.42

11. $0.\overline{8}$

12. $-6.\overline{3}$

13. 0.91

14. 17.875

15. $-0.666\ldots$

16. 0.07

17. $9.\overline{7}$

18. 7.75

19. 0.525

20. -8.26

21. $6.\overline{5}$

22. -4.12

23. 13.006

24. $3.\overline{34}$

Identify all sets to which each number belongs (W = whole numbers, I = integers, Q = rational numbers).

25. 15

26. $-3.\overline{8}$

27. -5.075

28. $\frac{50}{25}$

29. π

30. $-\frac{4}{2}$

31. **BOTANY** The smallest flowering plant is the flowering aquatic duckweed found in Australia. It is 0.0236 inch long and 0.0129 inch wide. Write these dimensions as fractions in simplest form.

5-3 Practice***Multiplying Rational Numbers*****Find each product. Write in simplest form.**

1. $\frac{3}{4} \cdot \frac{2}{3}$

2. $\frac{3}{7} \cdot \frac{21}{39}$

3. $-\frac{3}{4} \cdot \frac{10}{27}$

4. $\frac{11}{14} \cdot \frac{7}{33}$

5. $-\frac{18}{24} \cdot \frac{3}{4}$

6. $\frac{9}{10} \cdot \frac{20}{21}$

7. $-50 \cdot \frac{3}{1000}$

8. $\frac{16}{17} \cdot \left(-\frac{5}{8}\right)$

9. $-\frac{1}{2} \cdot \left(-\frac{20}{27}\right)$

10. $-\frac{14}{15} \cdot \left(-\frac{10}{28}\right)$

11. $4\frac{4}{7} \cdot 9\frac{1}{3}$

12. $-2\frac{14}{25} \cdot 4\frac{3}{8}$

13. $4\frac{1}{8} \cdot \left(-1\frac{5}{11}\right)$

14. $-5 \cdot \frac{17}{25}$

15. $2\frac{9}{10} \cdot 1\frac{1}{5}$

16. $\frac{6m}{13} \cdot \frac{2}{mn}$

17. $\frac{p}{3} \cdot \frac{1}{q}$

18. $\frac{2u}{v^2} \cdot \frac{3}{u}$

19. $\frac{4x}{3y} \cdot \frac{9y}{2x}$

20. $\frac{2a}{b} \cdot \frac{c}{2d}$

21. $\frac{rs}{9t} \cdot \frac{3}{s^2}$

22. $2x \cdot \frac{1}{4x^2}$

23. $\frac{x^2}{4y} \cdot \frac{16y^2}{3x}$

24. $\frac{2}{r} \cdot \frac{3}{r}$

25. **WEIGHTS** How many ounces are in $3\frac{3}{4}$ pounds?

26. **FOOTBALL** The total length of 17.6 football fields equals 1 mile. How long is a mile?
(Hint: length of a football field = 100 yd)

27. **AIRPLANES** The fastest airliner, the Concorde, has the capability of cruising at speeds of up to 1450 mph. While cruising at this top speed, how far would the Concorde travel in $2\frac{1}{2}$ hours?

5-4 Practice***Dividing Rational Numbers*****Find each quotient. Write in simplest form.**

1. $\frac{1}{2} \div \frac{1}{10}$

2. $-\frac{3}{8} \div \frac{9}{24}$

3. $-\frac{15}{16} \div \frac{7}{12}$

4. $\frac{17}{20} \div \left(-\frac{3}{10}\right)$

5. $-\frac{3}{8} \div \left(-\frac{3}{9}\right)$

6. $\frac{25}{32} \div \frac{15}{56}$

7. $0 \div \frac{17}{18}$

8. $-1\frac{1}{2} \div \frac{1}{4}$

9. $\frac{8}{9} \div \frac{22}{81}$

10. $8\frac{4}{9} \div 2\frac{1}{9}$

11. $4\frac{3}{5} \div \frac{2}{5}$

12. $-\frac{100}{63} \div \frac{10}{81}$

13. $18\frac{1}{3} \div \left(-4\frac{1}{6}\right)$

14. $-3\frac{2}{9} \div \frac{4}{27}$

15. $-2\frac{5}{6} \div \frac{3}{51}$

16. $4\frac{11}{12} \div 4\frac{5}{6}$

17. $\frac{2x}{3} \div \frac{1}{9}$

18. $\frac{a}{4} \div \frac{a}{8}$

19. $\frac{4k}{5} \div \frac{25}{2k}$

20. $\frac{ab}{8} \div \frac{b}{a}$

21. $\frac{2c}{b} \div \frac{4a}{b}$

22. $\frac{y}{x} \div y^2$

23. $\frac{3st}{r} \div \frac{4t}{r}$

24. $\frac{a^2}{b^2} \div \frac{c^2}{b^2}$

25. $-\frac{2x}{y} \div \frac{4}{y}$

26. $\frac{m^2}{2np} \div \frac{n}{4p}$

27. Evaluate $x \div y$ if $x = 3\frac{1}{2}$ and $y = \frac{3}{4}$.

28. Evaluate $w \div z$ if $w = \frac{6}{7}$ and $z = 3$.

29. **TRAVEL** What is the average speed that Robin must drive to reach her friend's house 170 miles away in $2\frac{1}{2}$ hours?

30. **SEWING** How many choir robes can be made from $20\frac{1}{4}$ yards of fabric if each robe needs $1\frac{1}{8}$ yards?

5-5 Practice***Adding and Subtracting Like Fractions*****Find each sum or difference. Write in simplest form.**

1. $\frac{5}{7} + \frac{2}{7}$

2. $\frac{5}{11} - \frac{1}{11}$

3. $\frac{13}{20} - \frac{3}{20}$

4. $\frac{5}{16} + \frac{15}{16}$

5. $-\frac{19}{40} + \frac{21}{40}$

6. $-\frac{7}{9} - \frac{4}{9}$

7. $\frac{14}{23} - \frac{16}{23}$

8. $\frac{25}{36} + \left(-\frac{7}{36}\right)$

9. $\frac{21}{25} + \frac{9}{25}$

10. $10\frac{4}{7} + 11\frac{5}{7}$

11. $9\frac{3}{8} + 4\frac{1}{8}$

12. $-8\frac{7}{10} + 2\frac{3}{10}$

13. $23\frac{17}{20} - 4\frac{7}{20}$

14. $22\frac{3}{8} - 18\frac{5}{8}$

15. $7\frac{9}{10} + 3\frac{3}{10}$

16. $6\frac{1}{6} - 3\frac{5}{6}$

17. $5\frac{1}{4} + 3\frac{1}{4} + 9\frac{3}{4}$

18. $6\frac{7}{8} + \left(-7\frac{3}{8}\right)$

19. $\frac{h}{6} + \frac{4h}{6}$

20. $\frac{5c}{22} + \frac{5c}{22}$

21. $\frac{35}{d} - \frac{17}{d}, d \neq 0$

22. $\frac{4r}{9} + \frac{5r}{9}$

23. $\frac{6s}{t} + \frac{s}{t}$

24. $\frac{5p}{9} - \frac{4p}{9}$

25. $\frac{6r^2}{s^2} + \frac{5r^2}{s^2}$

26. $4\frac{5}{7a} - 2\frac{3}{7a}$

- 27. PICTURE FRAMING** Matt plans to paste a picture that is $6\frac{7}{8}$ inches wide on a sheet of paper that is $8\frac{4}{8}$ inches wide. If he wants to have at least $\frac{5}{8}$ inch of margin on each side, will the picture fit? Explain.

5-6 Practice**Least Common Multiple**

Find the least common multiple (LCM) of each pair of numbers or monomials.

1. 10, 12

2. 9, 15

3. 20, 24

4. 30, 45

5. 14, 15

6. 35, 75

7. 12, 63

8. 48, 20

9. $15q$, $3q^2t$

10. 9, $18b$

11. $8y$, $10y^2$

12. $20p$, $100p^2$

Find the least common denominator (LCD) of each pair of fractions.

13. $\frac{1}{2}$, $\frac{2}{3}$

14. $\frac{9}{14}$, $\frac{3}{7}$

15. $\frac{5}{12}$, $\frac{8}{15}$

16. $\frac{13}{18}$, $\frac{6}{45}$

17. $\frac{5}{32}$, $\frac{17}{24}$

18. $\frac{1}{x}$, $\frac{3}{xy}$

19. $\frac{3}{8m}$, $\frac{1}{4mn^2}$

20. $\frac{12}{25ab}$, $\frac{3}{100b^2}$

Replace each $\bullet$ with $<$, $>$, or $=$ to make a true sentence.

21. $\frac{2}{5} \bullet \frac{7}{15}$

22. $\frac{4}{9} \bullet \frac{8}{18}$

23. $\frac{9}{36} \bullet \frac{4}{8}$

24. $\frac{4}{8} \bullet \frac{5}{9}$

25. $\frac{4}{18} \bullet \frac{3}{15}$

26. $\frac{3}{28} \bullet \frac{5}{32}$

27. **VOTING** During a student council meeting, $\frac{7}{12}$ of the members voted to hold a bake sale.If a $\frac{2}{3}$ vote is required to pass, will a bake sale be held?

5-7 Practice***Adding and Subtracting Unlike Fractions*****Find each sum or difference. Write in simplest form.**

1. $\frac{9}{10} + \frac{1}{2}$

2. $\frac{7}{8} + \frac{1}{10}$

3. $-\frac{3}{4} + \frac{5}{16}$

4. $\frac{4}{5} - \frac{2}{6}$

5. $\frac{5}{8} - \frac{3}{16}$

6. $\frac{1}{3} + \frac{5}{36}$

7. $\frac{7}{10} - \frac{14}{100}$

8. $\frac{17}{21} - \frac{4}{6}$

9. $\frac{11}{14} - \frac{1}{6}$

10. $\frac{4}{15} - \left(-\frac{3}{12}\right)$

11. $\frac{7}{15} + \frac{3}{6}$

12. $-\frac{7}{8} + \frac{9}{10}$

13. $10\frac{1}{2} + 7\frac{1}{3}$

14. $7\frac{1}{2} - 2\frac{7}{10}$

15. $8\frac{1}{6} + 5\frac{3}{4}$

16. $7\frac{7}{12} - 5\frac{1}{3}$

17. $6\frac{4}{5} + \left(-2\frac{3}{8}\right)$

18. $16\frac{3}{5} + 3\frac{11}{15}$

19. $18\frac{3}{5} - 7\frac{1}{4}$

20. $12\frac{2}{7} - 3\frac{5}{6}$

21. $2\frac{5}{8} + 6\frac{3}{4}$

22. $29\frac{8}{33} + \left(-3\frac{1}{3}\right)$

23. $-6\frac{2}{7} - 5\frac{3}{14}$

24. $-16\frac{2}{7} - 3\frac{20}{21}$

25. $-10\frac{1}{9} + 9\frac{7}{45}$

26. $\frac{1}{3} + \frac{5}{6} + \frac{1}{2}$

27. $9\frac{2}{7} - 11\frac{18}{21}$

28. $-17\frac{2}{3} - \left(-5\frac{4}{18}\right)$

29. $11\frac{3}{16} - 5\frac{1}{12}$

30. $\frac{64}{143} - \frac{21}{208}$

31. **SEWING** The inseam on Juan's pants is $34\frac{1}{4}$ inches. If he has them shortened by $2\frac{7}{8}$ inches, what is the new length?

5-8 Practice***Solving Equations With Rational Numbers*****Solve each equation. Check your solution.**

1. $y + 6.1 = 19.5$

2. $m + 5.8 = 19.9$

3. $8.7 + x = 9.6$

4. $t - 4.82 = 5.36$

5. $\frac{1}{2} + x = \frac{4}{7}$

6. $-11 = x - 8$

7. $\frac{11}{12} = \frac{3}{8} + v$

8. $-2.9 = m - 3.6$

9. $\frac{x}{5.09} = 0$

10. $6 = \frac{3}{7} + u$

11. $\frac{4}{5}x = \frac{16}{25}$

12. $\frac{q}{3.2} = -20$

13. $9\frac{3}{4} = r - 6\frac{2}{9}$

14. $\frac{14}{25} = v + \frac{1}{2}$

15. $0.8p = 6$

16. $y + 2\frac{2}{5} = 5\frac{4}{15}$

17. $10 = \frac{5}{9}u$

18. $6\frac{2}{3} = n - 10\frac{1}{9}$

19. $b - \frac{7}{10} = -\frac{1}{4}$

20. $-5.2 = 20.8c$

21. $\frac{3}{8} + g = \frac{7}{12}$

22. $3\frac{3}{4} + h = -8\frac{1}{2}$

23. $9 = -\frac{1}{4}w$

24. $1\frac{1}{2} = 6q$

25. ELECTRICITY If a television uses $\frac{3}{20}$ kilowatt-hours of electricity per hour, how long will it take to use 14 kilowatt-hours of electricity?

26. COMPUTER DISKS Mr. Rosenthal bought 15 computer disks and a carrying case for \$28.50. If the carrying case cost \$6.75, what was the cost of each disk?

8-2 Practice***Solving Equations with Grouping Symbols*****Solve each equation. Check your solution.**

1. $4(j - 7) = 12$

2. $5(2k + 10) = 40$

3. $7(2p + 3) - 8 = 6p + 29$

4. $7(g - 4) = 3$

5. $3(4c + 5) = 24$

6. $2(a - 1) = 3(a + 1)$

7. $3(x - 3) = 5(1.5 + x)$

8. $2(1.5m + 3) = 3.5m - 1$

9. $a - \frac{5}{10} = 2a - \frac{3}{5}$

10. $2.2x - 5 = 2(1.4x + 3)$

11. $\frac{d}{0.2} = 3d + 2.1$

12. $5n + 3 = 2(n + 2) - 3n$

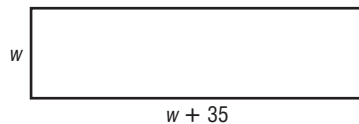
13. $\frac{2}{3}a + 2 = \frac{1}{3}(4a + 1)$

14. $y - 7 = \frac{1}{4}(y + 2)$

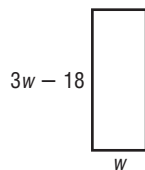
15. $5(f + 2) = 9 + 5f$

Find the dimensions of each rectangle. The perimeter is given.

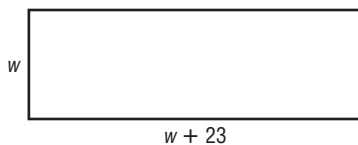
16. $P = 122$ m



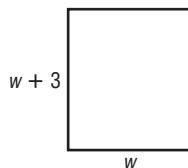
17. $P = 244$ yd



18. $P = 698$ cm



19. $P = 86$ in.



20. GEOMETRY The perimeter of a rectangle is 80 feet. Find the dimensions if the length is 5 feet longer than four times the width. Then find the area of the rectangle.

21. NUMBER THEORY Five times the sum of three consecutive integers is 150. What are the integers?

8-3 Practice

Inequalities

Write an inequality for each sentence.

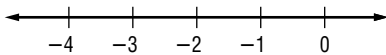
- More than 3400 people attended the flea market.
- Her earnings at \$11 per hour were no more than \$121.
- The 10-km race time of 84 minutes was at least twice as long as the winner's time.
- A savings account increased by \$70 is now more than \$400.

For the given value, state whether each inequality is true or false.

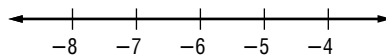
- $9 - x > 3, x = 6.5$
- $9.5 + n < 19, n = 10$
- $3k < 27\frac{1}{2}, k = 8$
- $21 \leq 4c, c = 5.2$
- $\frac{x}{4} \leq 8, x = 32$
- $\frac{9}{c} > 2, c = 3\frac{1}{2}$

Graph each inequality on a number line.

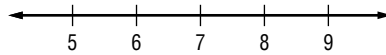
11. $a < -2$



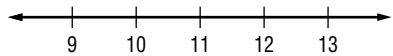
12. $t > -6$



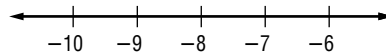
13. $d \geq 7$



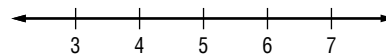
14. $b \geq 11$



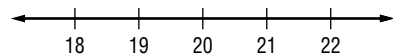
15. $x \leq -8$



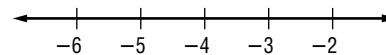
16. $w > 5$



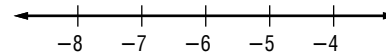
17. $n < 20$



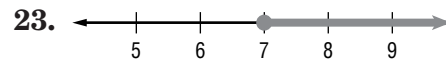
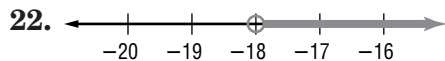
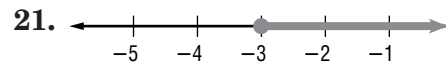
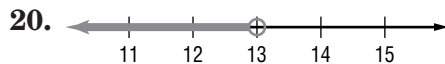
18. $b \leq -4$



19. $a \geq -6$



Write the inequality for each graph.



8-4 Practice***Solving Inequalities by Adding or Subtracting*****Solve each inequality. Check your solution.**

1. $h + 1 < 7$

2. $c + 3 > -4$

3. $22 \leq m - 9$

4. $-6 \geq g + 4$

5. $15 + d > 10$

6. $p + (-8) \leq -12$

7. $-13 < k - (-16)$

8. $-1 + s \leq 5$

9. $12 > w - (-0.3)$

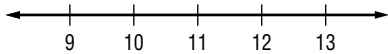
10. $-1\frac{7}{8} < d + (-2)$

11. $z - 0.9 > -4.8$

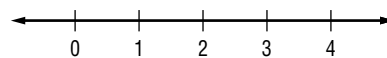
12. $b - \frac{1}{5} < 3\frac{1}{10}$

Solve each inequality. Then graph the solution on a number line.

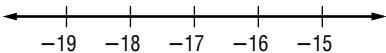
13. $5 + a > 16$



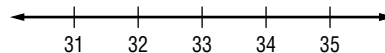
14. $c + 12 \leq 14$



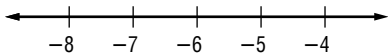
15. $-20 > h - 3$



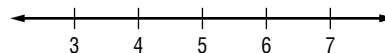
16. $16 \geq k + (-17)$



17. $p - (-2) \geq -4\frac{1}{2}$



18. $-2 + z < 3\frac{3}{4}$



19. TRANSPORTATION A certain minivan has a maximum carrying capacity of 1200 pounds. If the luggage weighs 150 pounds, what is the maximum weight allowable for passengers?

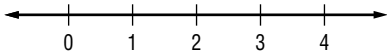
20. DRINKS A large punch bowl holds 12 gallons of liquids. If five gallons of ginger ale have already been poured into the bowl, what is the most fruit juice that can be added?

21. FUND-RAISING A neighborhood association wants to replace the playground equipment at a park. The playground equipment they would like to buy starts at \$4500. If they have already raised \$2700, what is the least they must still collect?

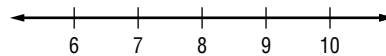
8-5 Practice***Solving Inequalities by Multiplying or Dividing***

Solve each inequality and check your solution. Then graph the solution on a number line.

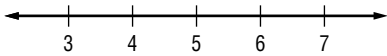
1. $9x > 18$



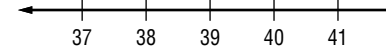
2. $10d \leq 80$



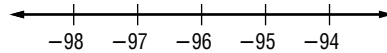
3. $25 \leq 5c$



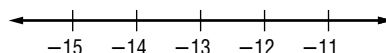
4. $\frac{t}{13} > 3$



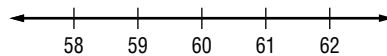
5. $24 \geq \frac{g}{-4}$



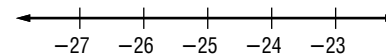
6. $-78 > 6h$



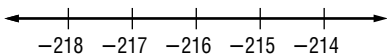
7. $\frac{f}{-5} < -12$



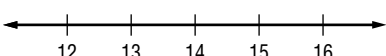
8. $100 \geq -4s$



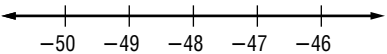
9. $\frac{p}{-36} < 6$



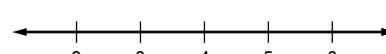
10. $-4 > \frac{c}{-3.5}$



11. $-24 < \frac{1}{2}b$



12. $-3 \leq \frac{c}{-1.5}$



- 13. DISCOUNTS** To qualify for a store discount, Jorge's soccer team must spend at least \$560 for new jerseys. The team needs 20 jerseys.

- Write an inequality to represent how much the team should spend on each jersey to qualify for the discount.
- How much should the team spend for each jersey?

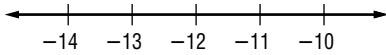
- 14. POLITICS** Mi-Ling wants to mail at least 850 fliers encouraging voters to vote for the upcoming school levy. She has five days to get them all in the mail.

- Write an inequality to represent how many fliers Mi-Ling must mail every day.
- How many fliers should Mi-Ling mail each day?

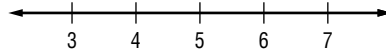
8-6 Practice**Solving Multi-Step Inequalities**

Solve each inequality and check your solution. Then, graph the solution on a number line.

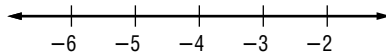
1. $2x + 12 < -12$



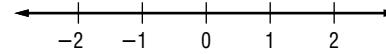
2. $6 + 2p \leq 16$



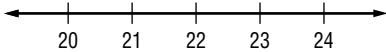
3. $5 - 4k \leq 21$



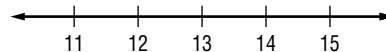
4. $3(d + 2) > 6$



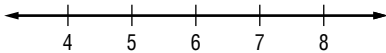
5. $\frac{m}{2} - 7 > 4$



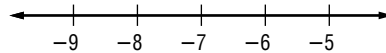
6. $0.5c - 2 \leq 4.5$



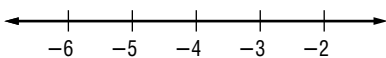
7. $\frac{2}{3}(12 - x) > 4$



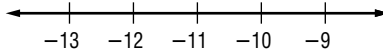
8. $\frac{1}{2}(8 - c) < 7.5$



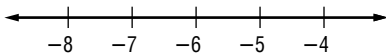
9. $\frac{c}{3} + 7 > 5\frac{1}{2}$



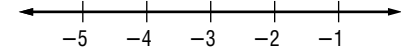
10. $7 + 2p < -14$



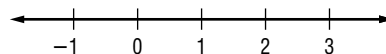
11. $-3(x + 3) > 7.5$



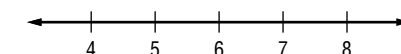
12. $5 - 3c \leq c + 17$



13. $2(n - 5) \leq -7$



14. $\frac{18 - n}{2} \leq 6$



15. Two times a number less 10 is greater than five times the same number plus 2. For what number or numbers is this true?

16. One-half of the sum of a number and 12 is less than 27. What is the number?

17. **STATE FAIR** Admission to the state fair costs \$5 and each ride costs \$0.75. If Ahmed wants to spend no more than \$14 at the fair, how many rides can he ride?

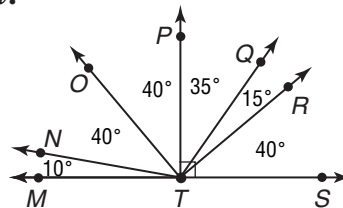
18. **GIFTS** Yuko wants to buy teddy bears that cost \$8.50 each for her eight nieces and nephews. She would like to get a hat for each teddy bear, also. If Yuko wants to spend no more than \$94, how much can she spend on each hat?

9-3 Practice

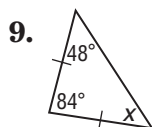
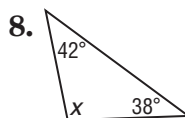
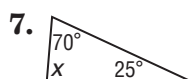
Triangles

Classify each angle as *acute*, *obtuse*, *right*, or *straight*.

1. $\angle MTN$
2. $\angle MTO$
3. $\angle MTP$
4. $\angle MTQ$
5. $\angle MTR$
6. $\angle NTO$

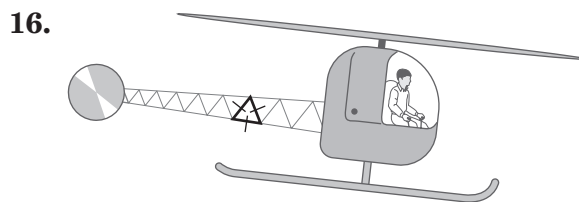
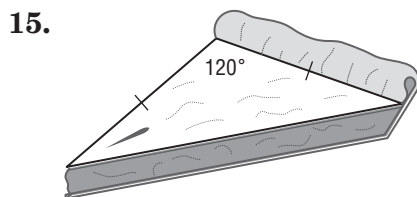
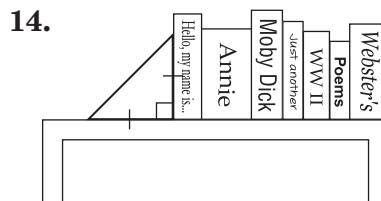
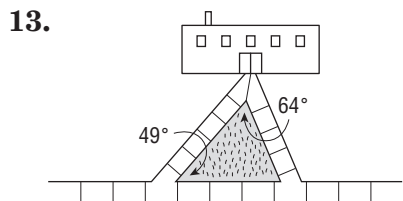


Find the value of x in each triangle. Then classify each triangle as *acute*, *right*, or *obtuse*.



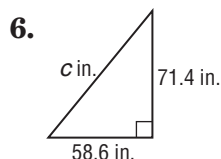
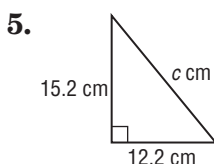
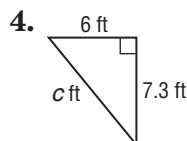
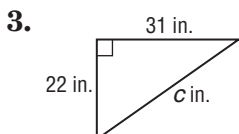
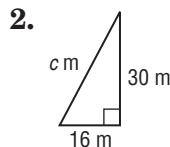
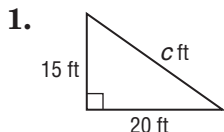
11. **ALGEBRA** The measures of the angles of a triangle are in the ratio 5:6:9. What is the measure of each angle?
12. **ALGEBRA** Determine the measures of the angles of $\triangle MNO$ if the measures of the angles are in the ratio 2:4:6.

Classify each triangle by its angles and by its sides.



9-4 Practice***The Pythagorean Theorem***

Find the length of the hypotenuse in each right triangle. Round to the nearest tenth, if necessary.



If c is the measure of the hypotenuse, find each missing measure. Round to the nearest tenth, if necessary.

7. $a = ?$, $b = 15$, $c = 31$

8. $a = 8$, $b = ?$, $c = 16$

9. $a = 11$, $b = 16$, $c = ?$

10. $a = ?$, $b = 13$, $c = 19$

11. $a = 10$, $b = ?$, $c = 18$

12. $a = 21$, $b = 23$, $c = ?$

13. $a = ?$, $b = 27$, $c = 35$

14. $a = 48$, $b = ?$, $c = 61$

15. $a = 26$, $b = \sqrt{596}$, $c = ?$

16. $a = ?$, $b = 12$, $c = \sqrt{318}$

The lengths of three sides of a triangle are given. Determine whether each triangle is a right triangle.

17. 5 m, 5 m, 10 m

18. 9 in., 12 in., 15 in.

19. **ARCHITECTURE** The diagonal distance covered by a flight of stairs is 21 ft. If the stairs cover 10 ft horizontally, how tall are they?

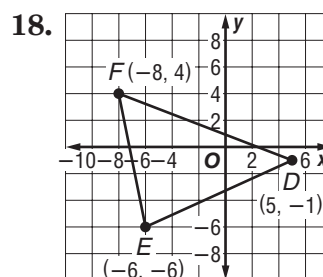
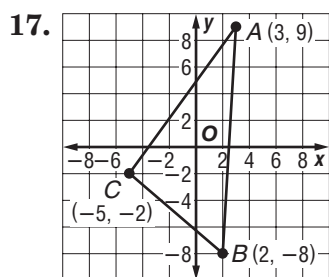
20. **KITES** A kite is flying at the end of a 300-foot string. It is 120 feet above the ground. About how far away horizontally is the person holding the string from the kite?

9-5 Practice**The Distance Formula**

Find the distance between each pair of points. Round to the nearest tenth, if necessary.

1. $A(5, 2), B(3, 4)$
2. $C(-2, -4), D(1, 3)$
3. $E(-3, 4), F(-2, 1)$
4. $G(0, 0), H(-7, 8)$
5. $R(-4, -8), S(2, -3)$
6. $G(9, 9), H(-9, -9)$
7. $M(1, 1), N(-10, -10)$
8. $P\left(1\frac{1}{2}, 3\right), Q\left(5, 6\frac{1}{4}\right)$
9. $R\left(7, 4\frac{1}{2}\right), S\left(6\frac{1}{2}, 3\frac{1}{4}\right)$
10. $T\left(-3\frac{1}{2}, -4\frac{1}{4}\right), U\left(5\frac{1}{2}, 1\frac{1}{2}\right)$
11. $A(5, 1), B(-4, -3)$
12. $V(4, 6), W(-8, -12)$
13. $C(-2, -4), D(-5, 6)$
14. $X(1, -7), Y(-1, 7)$
15. $E(5, -3), F(-7, 8)$
16. $A(8, 8), B(-8, -8)$

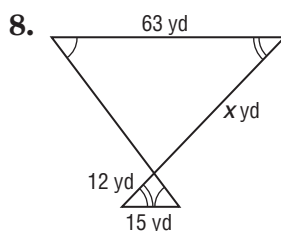
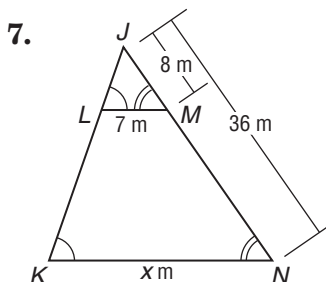
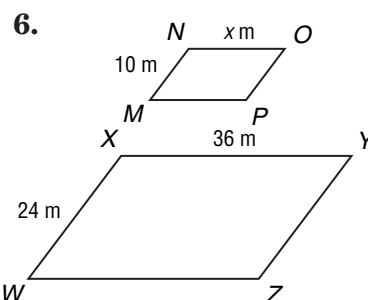
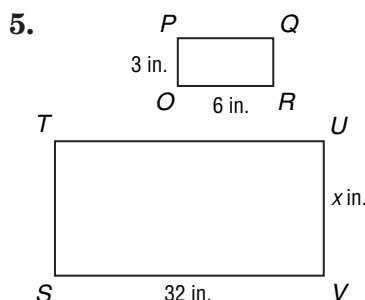
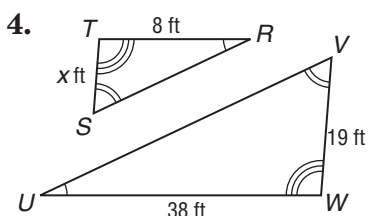
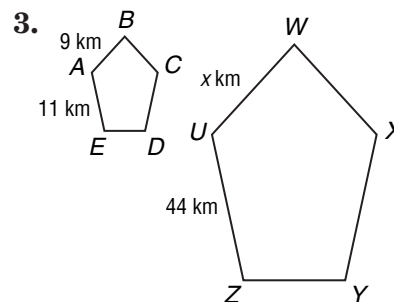
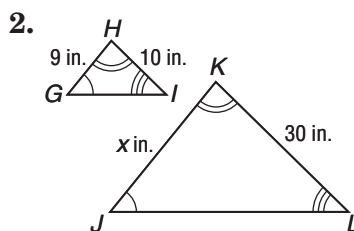
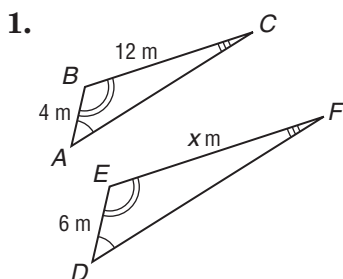
GEOMETRY Find the perimeter of each figure.



19. **MAPS** On a map of the school, the baseball field is located at the coordinates $(1, 7)$. The front entrance of the school is located at $(5, 2)$. If each coordinate unit corresponds to 10 yards, how far is it from the front entrance to the baseball field?
20. Determine whether $\triangle XYZ$ with vertices $X(3, 4)$, $Y(2, -3)$, and $Z(-5, -2)$ is isosceles. Explain your answer.
21. Is $\triangle DEF$ with vertices $D(1, 4)$, $E(6, 2)$, $F(-1, 3)$ a scalene triangle? Explain.

9-6 Practice**Similar Polygons and Indirect Measurement**

In Exercises 1–8, the triangles are similar. Find each value of x .



For Exercises 9–12, write a proportion. Then determine the missing measure.

9. **CHIMNEYS** A 6-ft observer casts a 4-ft shadow at the same time a chimney casts a 238-foot shadow. How tall is the chimney?

10. **BUILDINGS** The May Road Apartments in Hong Kong cast a 90-meter shadow at the same time a 1.5-meter tall tenant casts a 0.75-meter shadow. How tall is the apartment building?

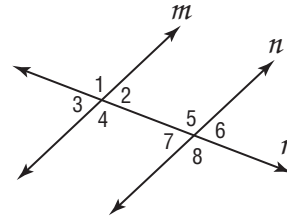
11. **WORLD RECORDS** The world's tallest man lived from 1918 to 1940. He cast a 4-foot $5\frac{1}{2}$ inch shadow when a 6-foot pole cast a 3-foot shadow. How tall was he?

12. **SHADOWS** A man casts a 14-foot shadow. A 4-foot child casts a 9-foot 4-inch shadow at the same time. How tall is the man?

10-1 Practice**Line and Angle Relationships**

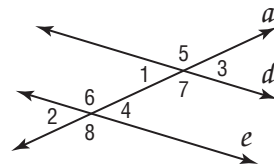
In the figure at the right, $m \parallel n$ and r is a transversal.
If $m\angle 2 = 45^\circ$, find the measure of each angle.

- | | |
|---------------|---------------|
| 1. $\angle 4$ | 2. $\angle 5$ |
| 3. $\angle 7$ | 4. $\angle 8$ |
| 5. $\angle 6$ | 6. $\angle 3$ |



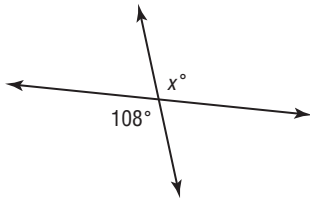
In the figure at the right, $d \parallel e$ and a is a transversal.
If $m\angle 5 = 143^\circ$, find the measure of each angle.

- | | |
|----------------|----------------|
| 7. $\angle 7$ | 8. $\angle 6$ |
| 9. $\angle 4$ | 10. $\angle 2$ |
| 11. $\angle 1$ | 12. $\angle 8$ |

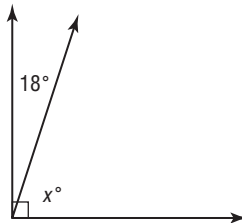


Find the value of x in each figure.

13.



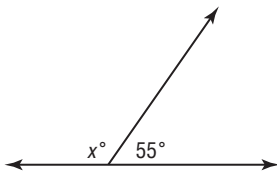
14.



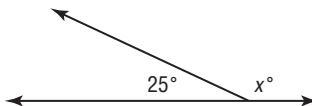
15.



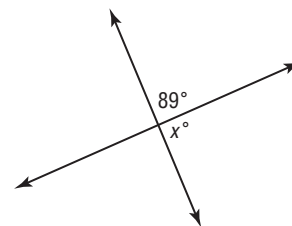
16.



17.



18.



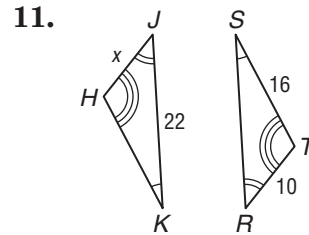
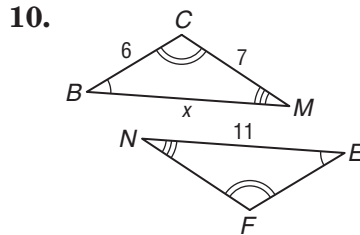
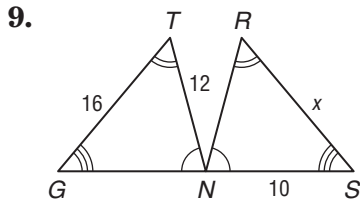
19. Angles Q and R are complementary. Find $m\angle R$ if $m\angle Q = 24^\circ$.
20. Find $m\angle J$ if $m\angle K = 29^\circ$ and $\angle J$ and $\angle K$ are supplementary.
21. The measures of angles A and B are equal and complementary. What is the measure of each angle?
22. **ALGEBRA** Angles G and H are complementary. If $m\angle G = 3x + 6$ and $m\angle H = 2x - 11$, what is the measure of each angle?

10-2 Practice***Congruent Triangles***

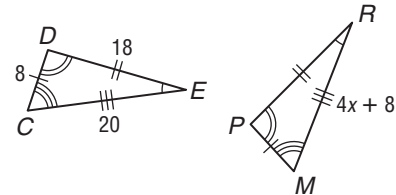
Complete the congruence statement if $\triangle CMH \cong \triangle PLF$ and $\triangle DNO \cong \triangle AET$.

1. $\angle M \cong$? 2. $\overline{MC} \cong$? 3. $\overline{DN} \cong$? 4. $\angle A \cong$?
 5. $\overline{FL} \cong$? 6. $\angle C \cong$? 7. $\overline{TE} \cong$? 8. $\angle O \cong$?

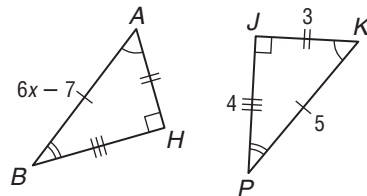
Find the value of x for each pair of congruent triangles.



12. **ALGEBRA** If $\triangle DEC \cong \triangle PRM$, what is the value of x ?

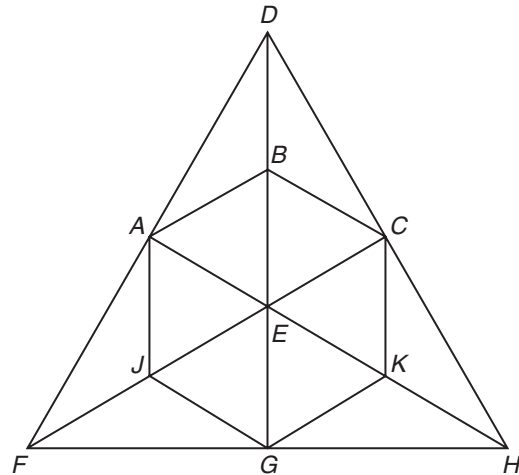


13. **ALGEBRA** If $\triangle AHB \cong \triangle KJP$, what is the value of x ?



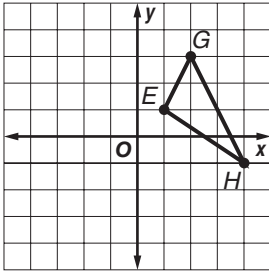
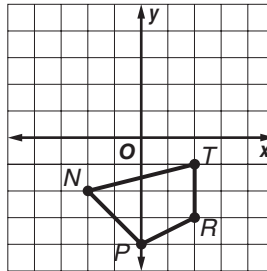
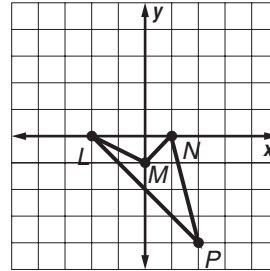
KALEIDOSCOPE For Exercises 14–19, use the kaleidoscope pattern at the right. Name a triangle that appears to be congruent to each triangle listed.

14. $\triangle GEH$ 15. $\triangle FCH$
 16. $\triangle DEC$ 17. $\triangle ABD$
 18. $\triangle HEF$ 19. $\triangle CBE$



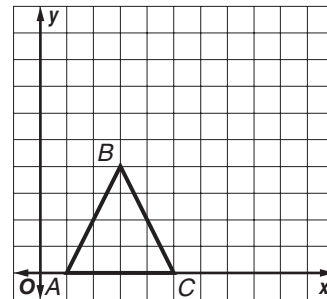
10-3 Practice**Transformations on the Coordinate Plane**

Find the coordinates of the vertices of each figure after a reflection over the given axis. Then graph the reflection image.

1. y -axis2. x -axis3. x -axis

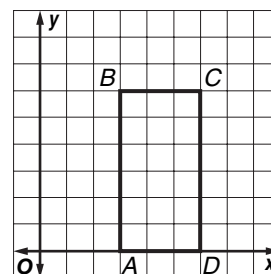
For Exercises 4–6, use the graph shown.

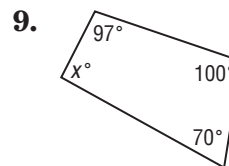
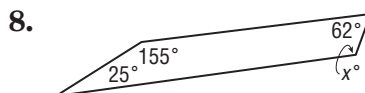
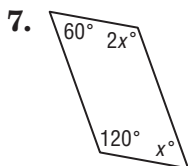
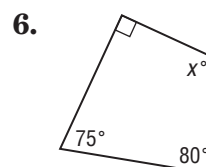
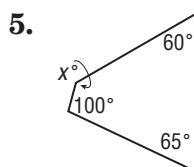
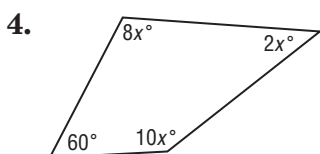
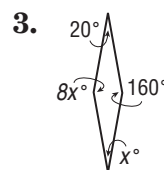
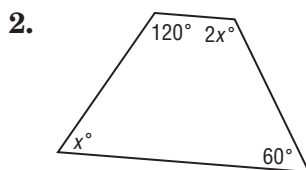
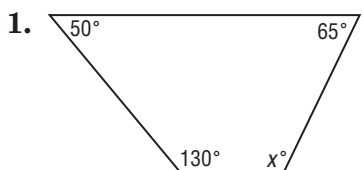
4. Graph the image of the figure after a dilation centered at the origin with a scale factor of 2.
5. Graph the image of the figure after a dilation centered at the origin with a scale factor of 1.5.
6. Find the coordinates of the vertices of the figure after a dilation centered at the origin with a scale factor of $\frac{1}{2}$.



For Exercises 7–9, use the graph shown.

7. Graph the image of the figure after a dilation centered at the origin with a scale factor of $\frac{1}{3}$.
8. Find the coordinates of the vertices of the figure after a dilation centered at the origin with a scale factor of 4.
9. Graph the image of the figure after a dilation centered at the origin with a scale factor of $\frac{4}{3}$.



10-4 Practice**Quadrilaterals****ALGEBRA** Find the value of x . Then find the missing angle measures.Tell whether each statement is *sometimes*, *always*, or *never* true.

10. A parallelogram is a trapezoid.
11. A square is a quadrilateral.
12. A rhombus is a rectangle.
13. A quadrilateral is a rectangle.

Make a drawing of each quadrilateral. Then classify each quadrilateral using the name that *best* describes it.

14. In quadrilateral $ACFG$, $m\angle A = 60^\circ$, $m\angle C = 120^\circ$, $m\angle F = 115^\circ$, and $m\angle G = 65^\circ$.
15. In quadrilateral $EMNP$, $m\angle E = 90^\circ$, $m\angle M = 80^\circ$, $m\angle N = 60^\circ$, and $m\angle P = 130^\circ$.