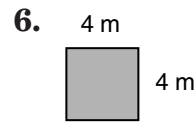
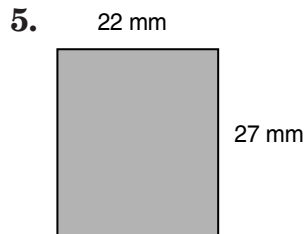
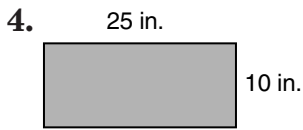
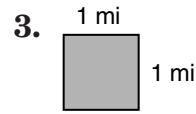
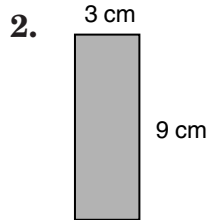
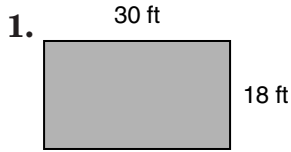


Skills Practice

A Plan for Problem Solving

Find the perimeter and area of each rectangle.



Find the perimeter and area of each rectangle described.

7. $\ell = 7 \text{ ft}, w = 2 \text{ ft}$

8. $\ell = 2 \text{ in.}, w = 1 \text{ in.}$

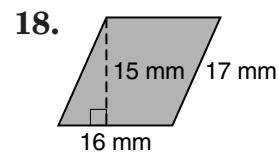
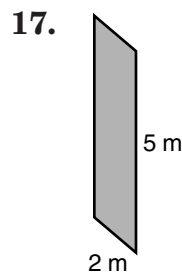
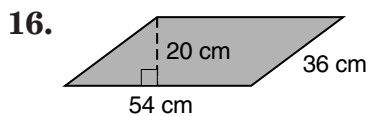
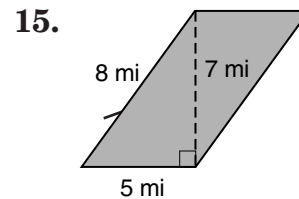
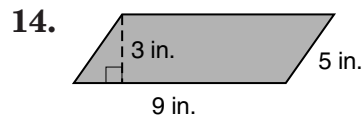
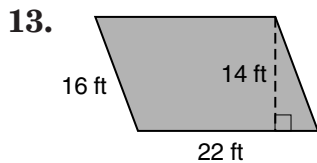
9. $\ell = 26 \text{ cm}, w = 23 \text{ ft}$

10. $\ell = 9 \text{ mi}, w = 1 \text{ mi}$

11. $\ell = 7 \text{ m}, w = 7 \text{ m}$

12. $\ell = 5 \text{ yd}, w = 25 \text{ yd}$

Find the area of each parallelogram.

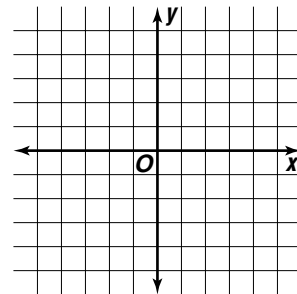


Skills Practice

The Coordinate Plane

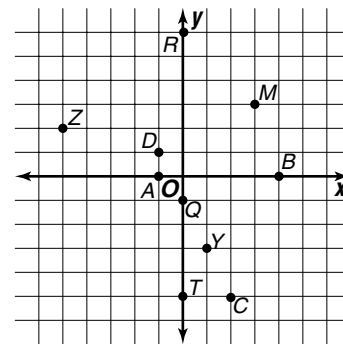
Graph and label each point on the coordinate plane.

- | | | |
|---------------|----------------|---------------|
| 1. $Z(0, 5)$ | 2. $T(5, -5)$ | 3. $B(5, 2)$ |
| 4. $Q(-3, 3)$ | 5. $D(-4, -4)$ | 6. $X(0, -4)$ |
| 7. $M(2, 5)$ | 8. $H(-4, 0)$ | 9. $F(-3, 1)$ |
| 10. $R(1, 1)$ | 11. $C(3, 4)$ | 12. $A(2, 0)$ |

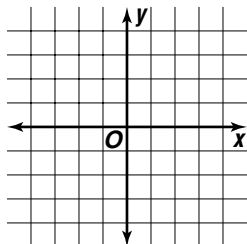


Name the ordered pair for each point.

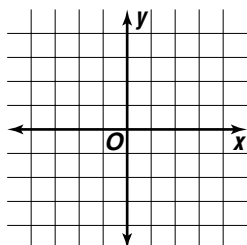
- | | |
|---------|---------|
| 13. R | 14. T |
| 15. Z | 16. B |
| 17. D | 18. Q |
| 19. Y | 20. M |
| 21. A | 22. C |



23. Graph $x = 2$.



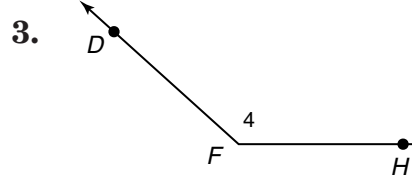
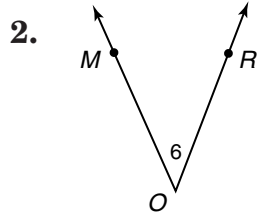
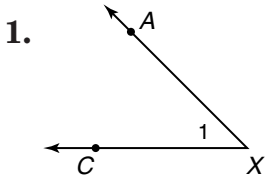
24. Graph $y = -1$.



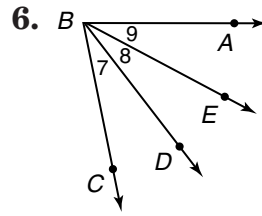
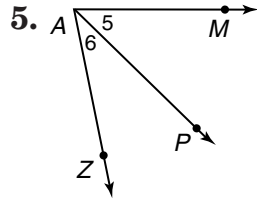
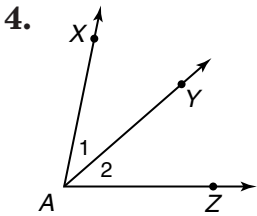
Skills Practice

Angles

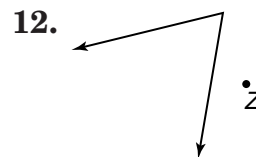
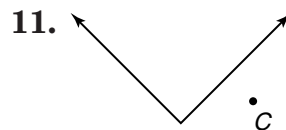
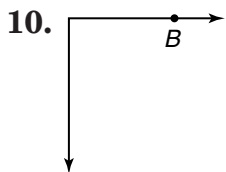
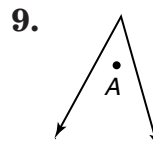
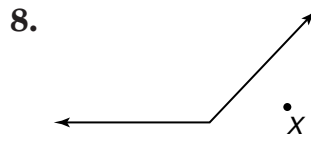
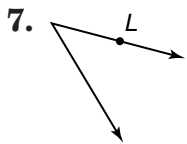
Name each angle in four ways. Then identify its vertex and its sides.



Name all angles having A as their vertex.



Tell whether each point is in the interior, exterior or on the angle.



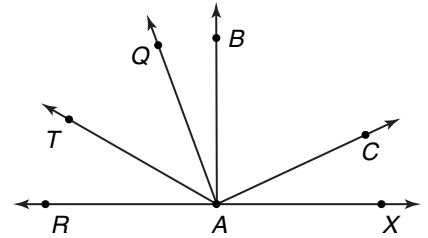
Determine whether each statement is true or false.

13. The figure formed by opposite rays is sometimes referred to as a straight angle.
14. The vertex is in the exterior of an angle.
15. An angle separates the plane into two parts: the interior and the exterior of the angle.

Skills Practice**Angle Measure**

*Use a protractor to find the measure of each angle.
Then classify each angle as acute, obtuse, or right.*

- | | |
|------------------|------------------|
| 1. $\angle TAR$ | 2. $\angle BAX$ |
| 3. $\angle CAX$ | 4. $\angle TAX$ |
| 5. $\angle BAR$ | 6. $\angle QAB$ |
| 7. $\angle RAC$ | 8. $\angle TAC$ |
| 9. $\angle QAC$ | 10. $\angle QAR$ |
| 11. $\angle QAX$ | 12. $\angle TAB$ |



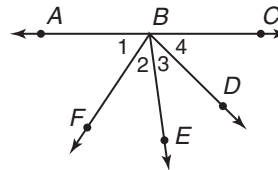
*Use a protractor to draw an angle having each measurement.
Then classify each angle as acute, obtuse, or right.*

- | | | |
|----------------|-----------------|-----------------|
| 13. 50° | 14. 120° | 15. 90° |
| 16. 25° | 17. 100° | 18. 140° |
| 19. 10° | 20. 135° | 21. 85° |

Skills Practice

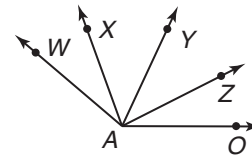
The Angle Addition Postulate

Refer to the figure at the right.



- If $m\angle ABE = 100$ and $m\angle ABF = 65$, find $m\angle 2$.
- Find $m\angle 4$ if $m\angle EBC = 80$ and $m\angle EBD = 44$.
- Find $m\angle 3$ if $m\angle FBD = 85$ and $m\angle FBE = 42$.
- If $m\angle ABE = 105$ and $m\angle EBD = 46$, find $m\angle ABD$.
- If $m\angle ABF = 46$ and $m\angle FBE = 54$, find $m\angle ABE$.
- Find $m\angle FBC$ if $m\angle 2 = 45$ and $m\angle EBC = 78$.
- If $m\angle FBD = 102$ and \overrightarrow{BE} bisects $\angle FBD$, find $\angle FBE$.

Refer to the figure at the right.

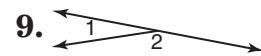
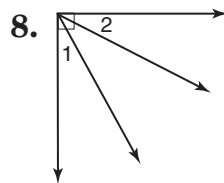
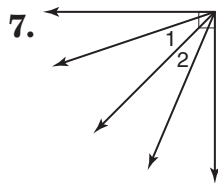
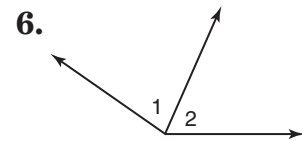
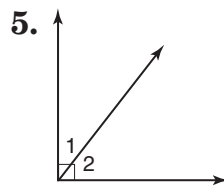
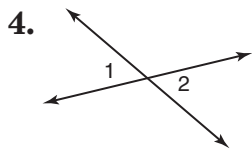
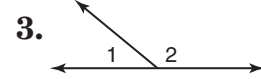
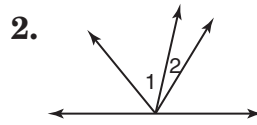
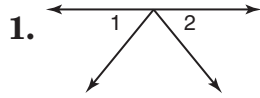


- If $m\angle WAZ = 95$ and $m\angle ZAO = 40$, find $m\angle WAO$.
- If $\angle WAZ$ is a right angle and $m\angle YAZ = 35$, find $m\angle WAY$.
- If $m\angle XAZ = 82$ and \overrightarrow{AY} bisects $\angle XAZ$, find $m\angle YAZ$.
- If $m\angle WAY = 66$ and \overrightarrow{AX} bisects $\angle WAY$, find $m\angle XAY$.
- Find $m\angle YAO$ if $m\angle WAO = 130$ and $m\angle WAY = 70$.
- If $m\angle WAO = 142$, and \overrightarrow{AY} bisects $\angle WAO$, find $m\angle WAY$.
- Find $m\angle XAO$ if $m\angle XAY = 35$, $m\angle YAZ = 40$, and $m\angle ZAO = 42$.

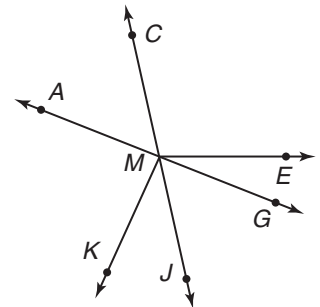
Skills Practice

Adjacent Angles and Linear Pairs of Angles

Use the terms adjacent angles, linear pair, or neither to describe angles 1 and 2 in as many ways as possible.



In the figure at the right, \overrightarrow{MA} and \overrightarrow{MG} are opposite rays. Also, \overrightarrow{MC} and \overrightarrow{MJ} are opposite rays.



10. Which angle forms a linear pair with $\angle AMC$?

11. Do $\angle CME$ and $\angle EMJ$ form a linear pair?
Justify your answer.

12. Name two angles that are adjacent to $\angle EMG$.

13. Name two angles that form a linear pair with $\angle JMG$.

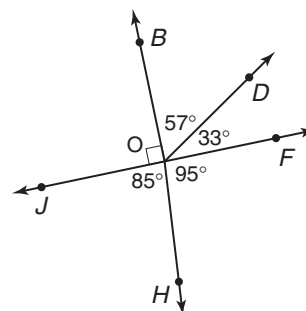
14. Name three angles that are adjacent to $\angle AMK$.

Skills Practice

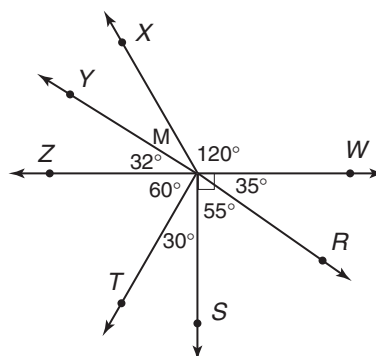
Complementary and Supplementary Angles

Refer to the figures at the right.

1. Name a pair of complementary angles.
2. Name two right angles.
3. Name three pairs of adjacent supplementary angles.
4. Find the measure of an angle that is complementary to $\angle JOH$.
5. Find the measure of an angle that is supplementary to $\angle DOF$.
6. Find the measure of $\angle BOH$.
7. Name a pair of complementary angles.
8. Name two right angles.
9. Find the measure of an angle that is complementary to $\angle YMZ$.
10. Find the measure of an angle that is supplementary to $\angle WMT$.
11. Find the measure of $\angle XMY$.
12. Is $\angle YMT$ a right angle? Justify your answer.
13. Find the measure of an angle that is supplementary to $\angle XMR$.
14. Find $m\angle 3$ if $\angle 3$ and $\angle 4$ form a linear pair and $m\angle 4 = 55$.
15. If $\angle 1$ and $\angle 2$ form a linear pair and $m\angle 1 = 130$, find $m\angle 2$.
16. Angles DEF and XYZ form a linear pair. If $m\angle DEF = 170$, what is $m\angle XYZ$?
17. If $\angle 4$ and $\angle 8$ are complementary and $m\angle 4 = 45$, find $m\angle 8$.
18. If $m\angle 3 = 10$ and $\angle 3$ and $\angle 7$ are complementary, what is $m\angle 7$?



Exercises 1-6

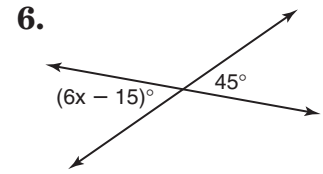
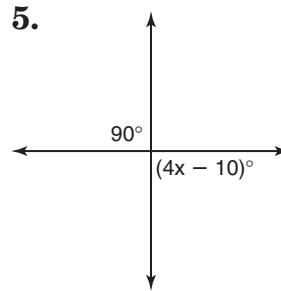
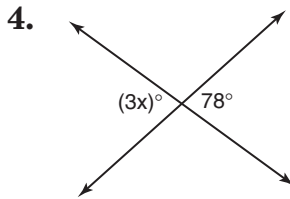
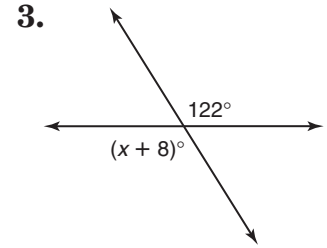
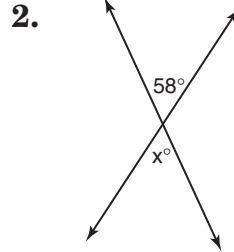
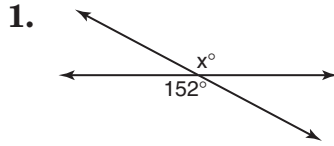


Exercises 7-13

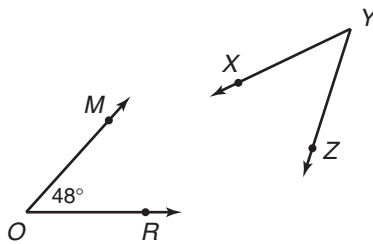
Skills Practice

Congruent Angles

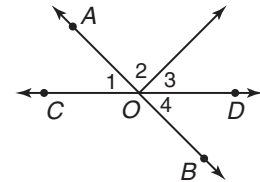
Find the value of x in each figure.



7. What is the measure of an angle complementary to $\angle XYZ$ if $\angle MOR \cong \angle XYZ$?

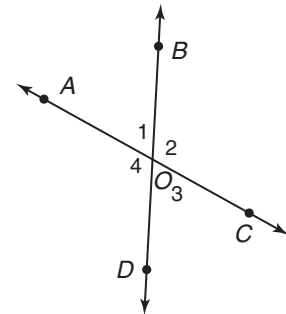


8. \overrightarrow{OA} and \overrightarrow{OB} are opposite rays and \overrightarrow{OC} and \overrightarrow{OD} are also opposite rays. If $m\angle 2 = 90$ and $m\angle 1 = 45$, what is $m\angle 4$?



Use the figure at the right.

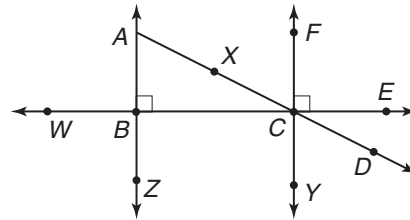
9. If $\angle 1 \cong \angle 3$ and $m\angle 1 = 64$, find the measure of an angle that is supplementary to $\angle 3$.
10. If $\angle AOB$ is supplementary to $\angle BOC$, $\angle BOC$ is supplementary to $\angle COD$, and $m\angle AOB = 58$, find $m\angle BOC$ and $m\angle COD$.
11. Find the measure of an angle that is complementary to $\angle 1$ if $\angle 1 \cong \angle 2$ and $m\angle 2 = 75$.
12. Find the measure of an angle that is supplementary to $\angle 4$ if $\angle 4 \cong \angle 9$ and $m\angle 9 = 24$.



Skills Practice

Perpendicular Lines

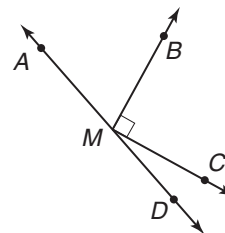
$\overline{AB} \perp \overline{BE}$, $\overline{FC} \perp \overline{BE}$, and point X is the midpoint of \overline{AC} . Determine whether each of the following is true or false.



1. $\angle XCB \cong \angle DCE$
2. $\angle BCY$ is a right angle.
3. $\angle FCE$ and $\angle FCX$ are supplementary.
4. $\overline{AB} \perp \overline{BC}$
5. $\angle FCD$ is a right angle.
6. $\angle FCX$ and $\angle XCB$ are complementary.
7. $m\angle WBZ > m\angle WBA$
8. \overline{FC} is the only line \perp to \overline{WE} at C
9. $\angle FCE$ and $\angle YCE$ are supplementary.
10. $\overline{AX} \cong \overline{XC}$
11. $\angle FCD \cong \angle WBA$
12. $\overline{AX} \cong \overline{FC}$
13. $\overline{AB} \perp \overline{AC}$
14. $\angle XCF \cong \angle DCY$

$\overline{BM} \perp \overline{MC}$, \overline{MA} and \overline{MD} are opposite rays.

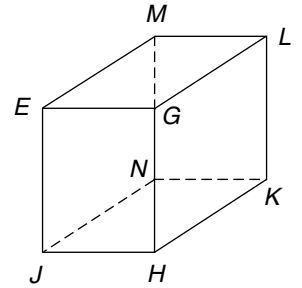
15. If $m\angle DMC = 25$, find $m\angle AMB$.
16. If $m\angle AMB = 72$, find $m\angle DMC$.
17. If $m\angle DMC = 2x + 2$ and $m\angle AMB = 8x - 2$, find $m\angle DMC$ and $m\angle AMB$.



Skills Practice**Parallel Lines and Planes**

Describe each pair of segments in the prism as parallel, skew, or intersecting.

1. $\overline{EG}, \overline{ML}$
2. $\overline{LK}, \overline{EG}$
3. $\overline{LK}, \overline{GH}$
4. $\overline{EG}, \overline{GH}$
5. $\overline{JN}, \overline{ML}$
6. $\overline{LK}, \overline{NK}$
7. $\overline{NK}, \overline{JH}$
8. $\overline{EG}, \overline{HK}$
9. $\overline{MN}, \overline{LK}$
10. $\overline{MN}, \overline{GL}$

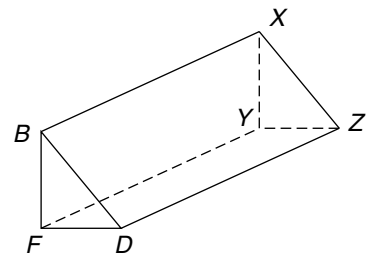


Use the figure for Exercises 1–10. Name the parts of the rectangular prism.

11. six planes
12. all pairs of parallel planes
13. all segments skew to \overline{JH}
14. all segments parallel to \overline{EG}
15. all segments intersecting \overline{ML}
16. all segments parallel to \overline{JN}

Name the parts of the triangular prism.

17. all pairs of intersecting planes
18. all pairs of parallel segments
19. all pairs of skew segments
20. all points at which three segments intersect

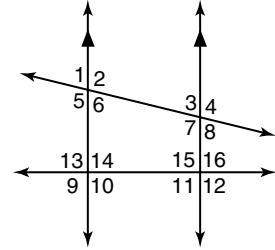


Skills Practice

Parallel Lines and Transversals

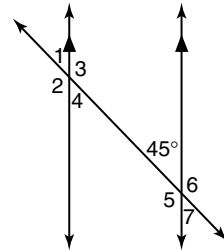
Identify each pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.

- | | |
|--------------------------------|---------------------------------|
| 1. $\angle 1$ and $\angle 6$ | 2. $\angle 2$ and $\angle 3$ |
| 3. $\angle 2$ and $\angle 7$ | 4. $\angle 1$ and $\angle 8$ |
| 5. $\angle 2$ and $\angle 5$ | 6. $\angle 10$ and $\angle 11$ |
| 7. $\angle 13$ and $\angle 12$ | 8. $\angle 5$ and $\angle 4$ |
| 9. $\angle 3$ and $\angle 8$ | 10. $\angle 14$ and $\angle 15$ |
| 11. $\angle 9$ and $\angle 14$ | 12. $\angle 14$ and $\angle 11$ |



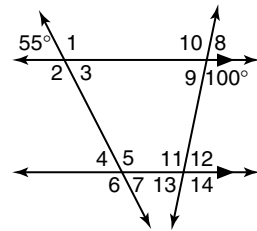
Find the measure of each angle. Give a reason for each answer.

- | | |
|----------------|----------------|
| 13. $\angle 7$ | 14. $\angle 4$ |
| 15. $\angle 3$ | 16. $\angle 6$ |



Find the measure of each angle. Give a reason for each answer.

- | |
|-----------------|
| 17. $\angle 1$ |
| 18. $\angle 3$ |
| 19. $\angle 12$ |
| 20. $\angle 11$ |



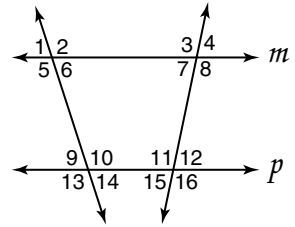
4-3

NAME _____ DATE _____ PERIOD _____

Skills Practice

Transversals and Corresponding Angles

In the figure, $m \parallel p$. Name all angles congruent to the given angle. Give a reason for each answer.



1. $\angle 1$

2. $\angle 7$

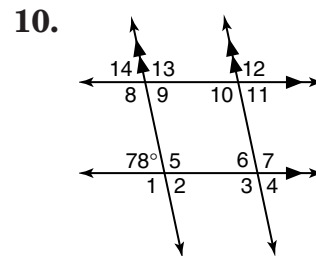
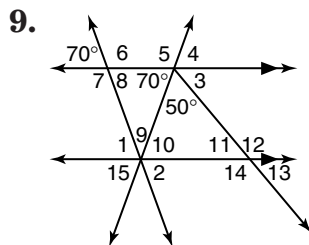
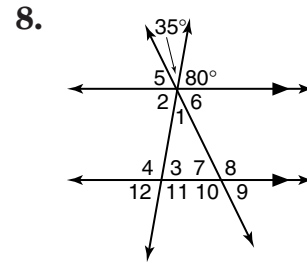
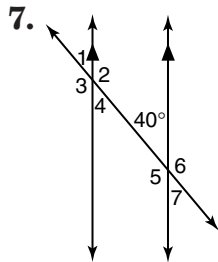
3. $\angle 13$

4. $\angle 8$

5. $\angle 9$

6. $\angle 16$

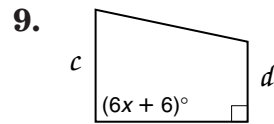
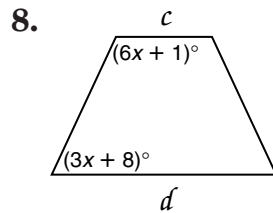
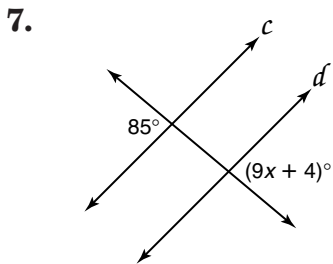
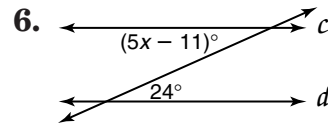
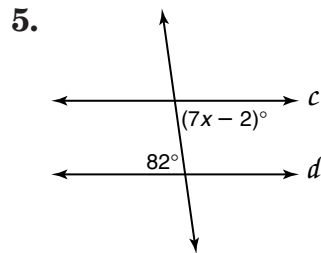
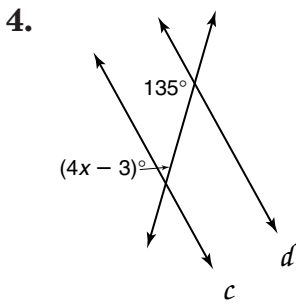
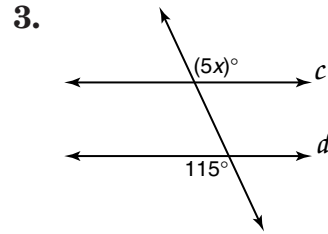
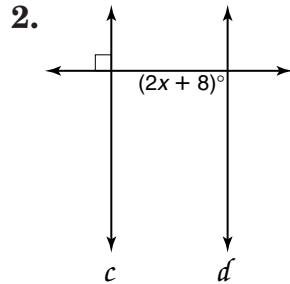
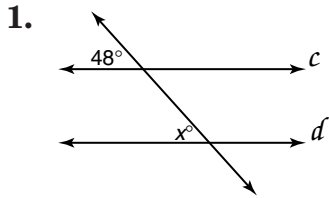
Find the measure of each numbered angle.



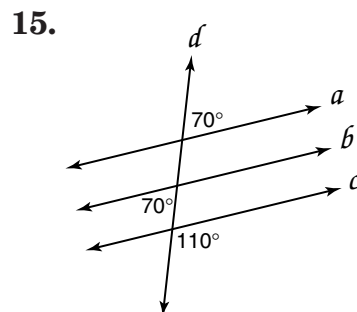
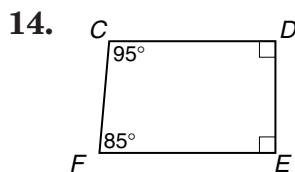
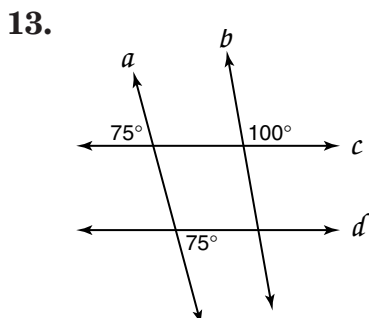
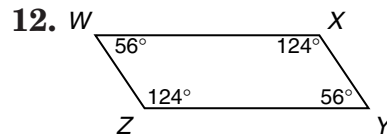
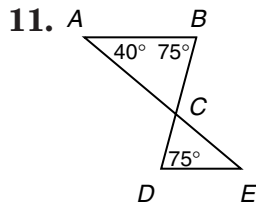
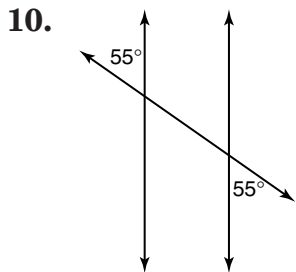
Skills Practice

Proving Lines Parallel

Find x so that $c \parallel d$.



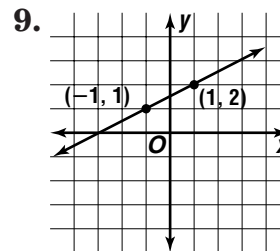
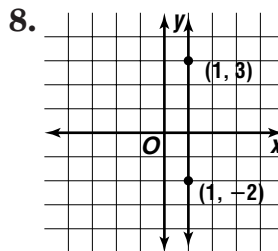
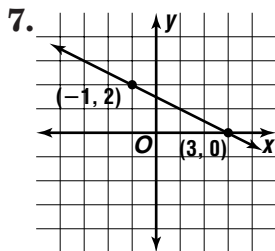
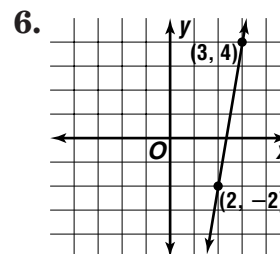
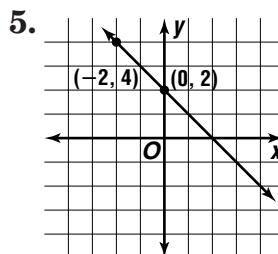
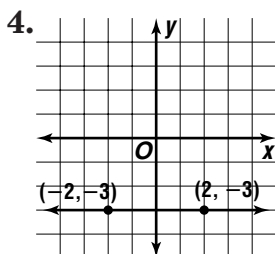
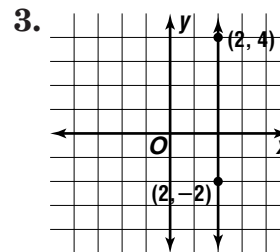
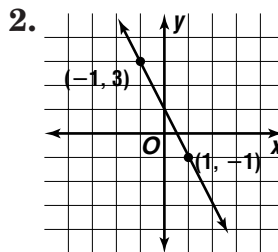
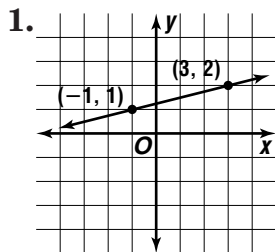
Name the pairs of parallel lines or segments.



Skills Practice

Slope

Find the slope of each line.

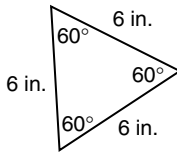


Given each set of points, determine if \overline{AB} and \overline{CD} are parallel, perpendicular, or neither.

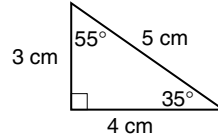
10. $A(1, 1), B(-2, 3), C(4, -1), D(6, 2)$
11. $A(0, 5), B(5, 0), C(3, 2), D(4, 1)$
12. $A(-2, 3), B(4, 5), C(0, 3), D(1, 0)$
13. $A(0, 0), B(4, 5), C(0, 3), D(5, -4)$
14. $A(-1, 1), B(3, -2), C(5, 0), D(3, -7)$
15. $A(2, -5), B(5, -2), C(-3, 1), D(-4, 0)$
16. $A(2, -1), B(5, -3), C(-2, -2), D(3, 3)$
17. $A(3, 0), B(6, -3), C(4, 3), D(5, 4)$

Skills Practice**Classifying Triangles****Classify each triangle by its angles and by its sides.**

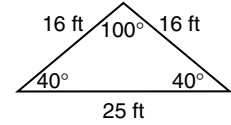
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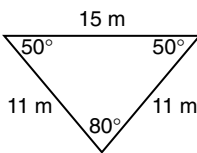
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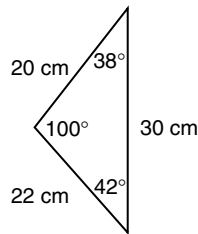
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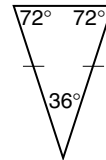
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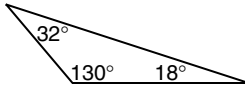
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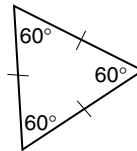
6.



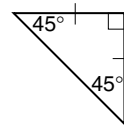
7.



8.



9.

**Make a sketch of each triangle. If it is not possible to sketch the figure, write not possible.**

10. right scalene

11. obtuse isosceles

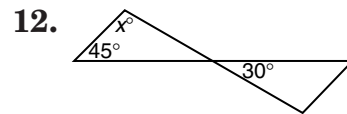
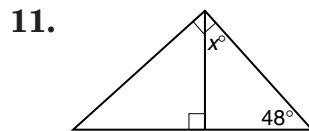
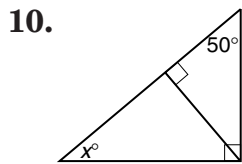
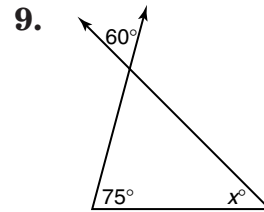
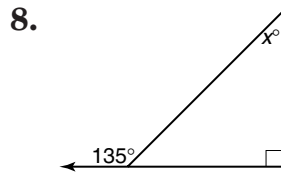
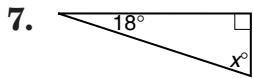
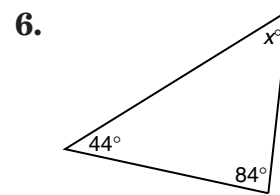
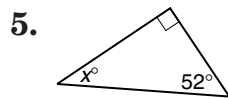
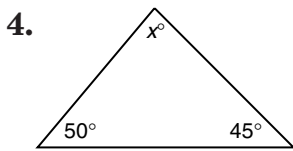
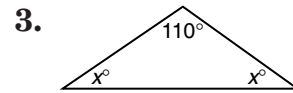
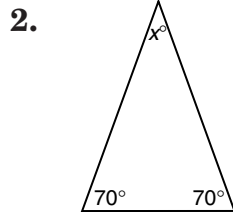
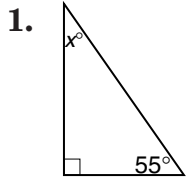
12. right isosceles

13. right equilateral

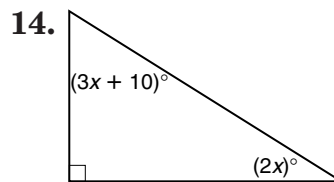
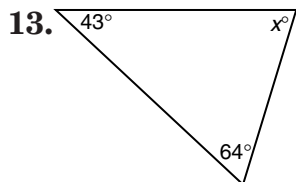
Skills Practice

Angles of a Triangle

Find the value of each variable.



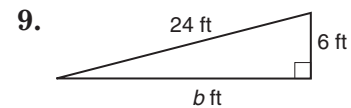
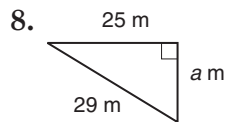
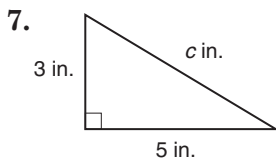
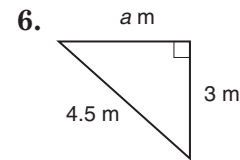
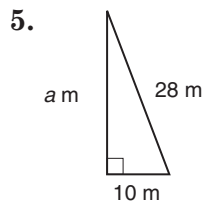
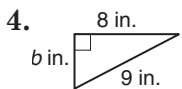
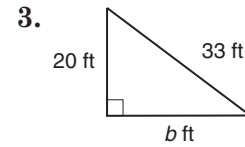
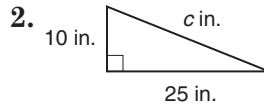
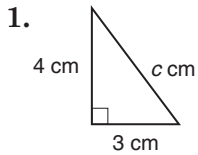
Find the measure of each angle in each triangle.



Skills Practice

The Pythagorean Theorem

Find the missing measure in each right triangle. Round to the nearest tenth, if necessary.



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

10. $a = 15$, $b = 10$, $c = ?$

11. $b = 6$, $c = 10$, $a = ?$

12. $c = 100$, $b = 60$, $a = ?$

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

14. $a = 2$, $b = 3$, $c = ?$

15. $c = 5$, $b = 2$, $a = ?$

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

17. $c = 30$, $a = 20$, $b = ?$

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

18. 3 cm, 4 cm, 5 cm

19. 1 ft, 1 ft, 2 ft

20. 2 in., 2 in., 4 in.

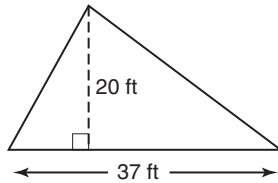
21. 8 m, 15 m, 17 m

22. 5 in., 10 in., 15 in.

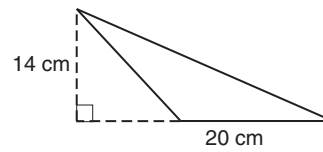
23. 14 cm, 48 cm, 50 cm

Skills Practice**Areas of Triangles and Trapezoids****Find the area of each triangle or trapezoid.**

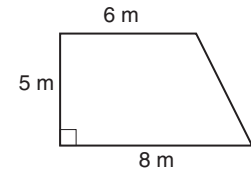
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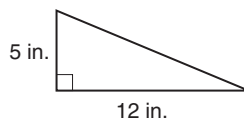
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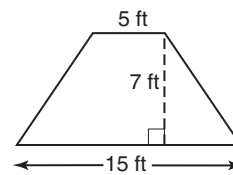
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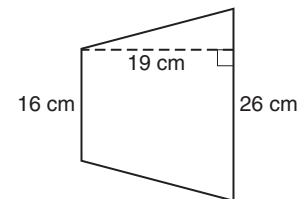
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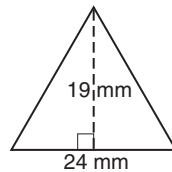
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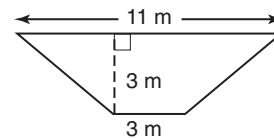
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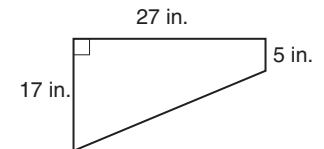
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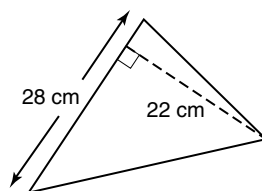
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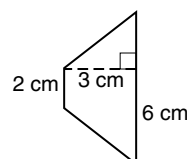
9.



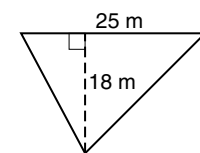
10.



11.



12.



13. Find the area of a trapezoid whose altitude measures 8 feet and whose bases are 9 feet and 21 feet long.

14. Find the area of a triangle whose base measures 17 inches and whose altitude is 10 inches.

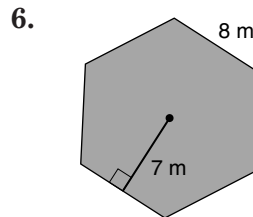
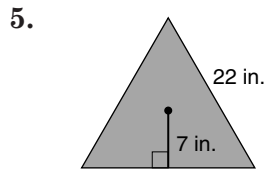
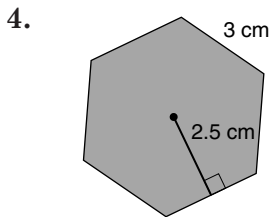
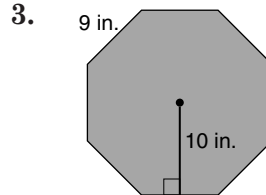
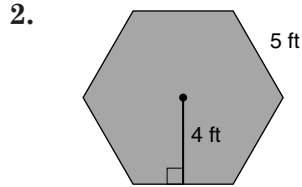
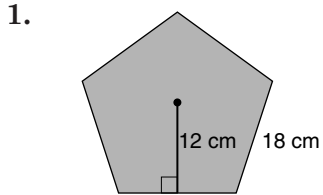
15. Find the area of a trapezoid whose altitude measures 77 meters and whose bases are 200 meters and 300 meters long.

16. The area of a triangle is 500 square feet. The height of the altitude is 25 feet. What is the length of the base?

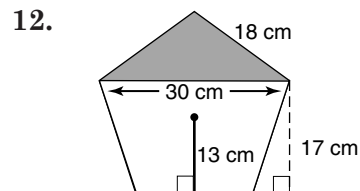
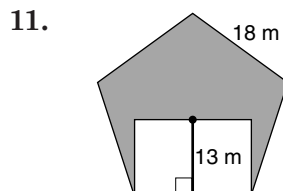
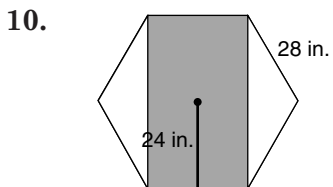
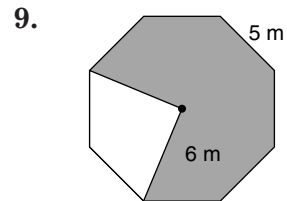
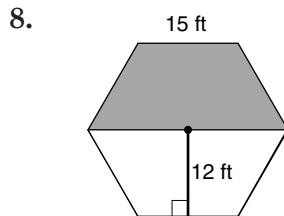
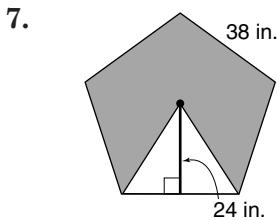
Skills Practice

Areas of Regular Polygons

Find the area of each regular polygon.



Find the area of the shaded region in each regular polygon.



Skills Practice***Circumference of a Circle***

Find the circumference of each object to the nearest tenth.

1. a round swimming pool with radius 12 feet
2. a circular top of a trampoline with diameter 16 feet
3. the circular base of a paper weight with diameter 3 centimeters
4. a CD with diameter 11 centimeters
5. circular garden with radius 10 feet
6. circular mirror with diameter 4 feet

Find the circumference of each circle to the nearest tenth.

7. $r = 7$ cm
8. $d = 20$ yd
9. $r = 1$ m
10. $d = 6$ ft
11. $r = 200$ ft
12. $d = 5$ in.
13. $r = 2$ m
14. $d = 70$ ft
15. $r = 3$ in.
16. $d = 10$ in.
17. $r = 19$ m
18. $d = 35$ yd

Find the radius of each circle to the nearest tenth for each circumference given.

19. 100 m
20. 32 ft
21. 18 mi
22. 28 cm
23. 80 in.
24. 25 m
25. 75 yd
26. 14 cm
27. 250 ft

Skills Practice**Area of a Circle**

Find the area of each circle to the nearest hundredth.

1. $r = 10$ in.

2. $r = 18$ cm

3. $r = 4$ mm

4. $d = 50$ ft

5. $d = 6$ in.

6. $d = 30$ m

7. $C = 31.42$ yd

8. $C = 131.95$ m

9. $C = 232.48$ ft

10. $r = 1$ mi

11. $d = 90$ m

12. $C = 628.32$ ft

13. $d = 300$ ft

14. $r = 6$ in.

15. $C = 150.80$ m

A circle has a radius of 10 inches. Find the area of a sector whose central angle has the following measure. Round to the nearest hundredth.

16. 90°

17. 30°

18. 120°

19. 45°

20. 60°

21. 135°

22. 100°

23. 150°

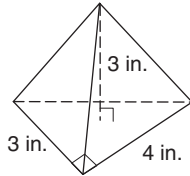
24. 70°

Skills Practice

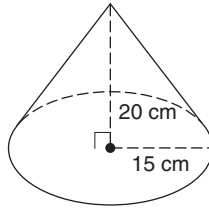
Volumes of Pyramids and Cones

Find the volume of each solid. Round to the nearest hundredth, if necessary.

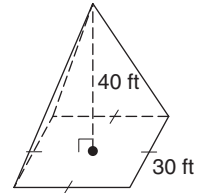
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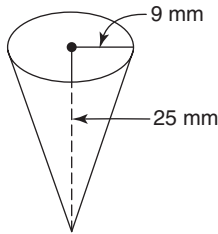
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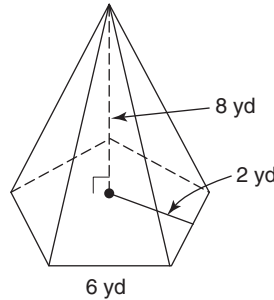
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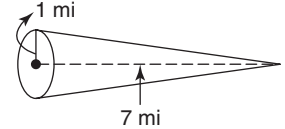
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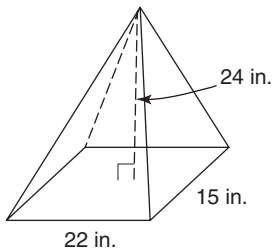
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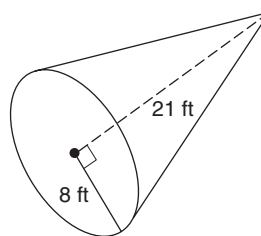
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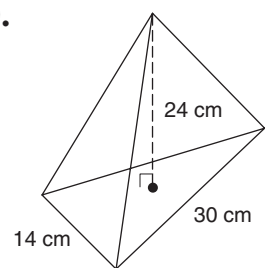
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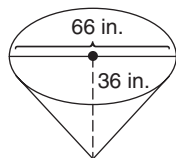
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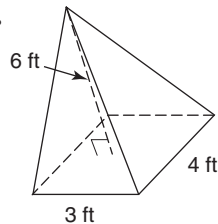
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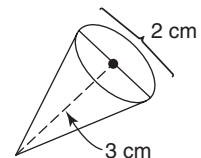
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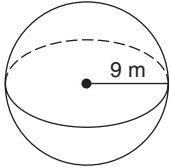
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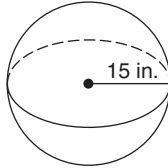
Skills Practice**Spheres**

Find the surface area and volume of each sphere. Round to the nearest hundredth.

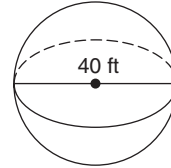
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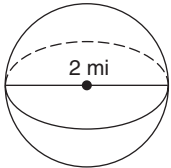
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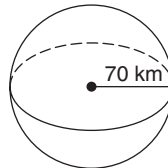
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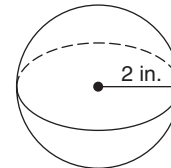
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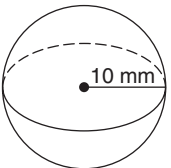
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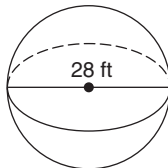
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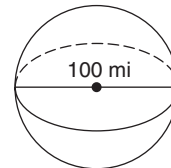
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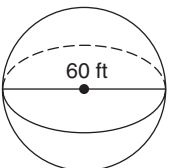
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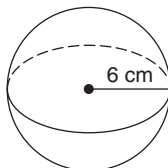
9.



10.



11.



12.

