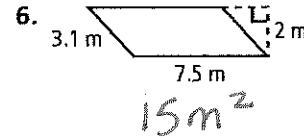
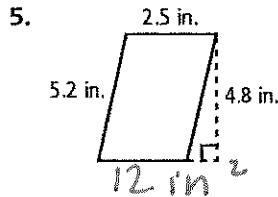
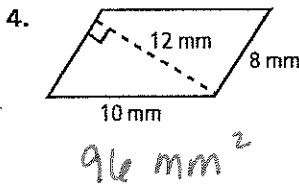
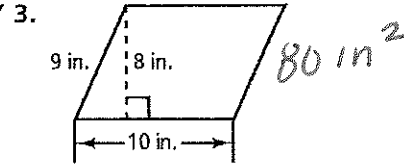
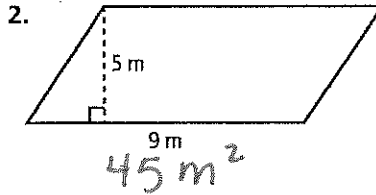
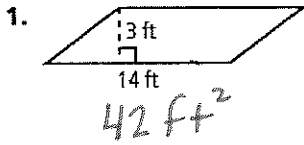


# 10-1 Practice

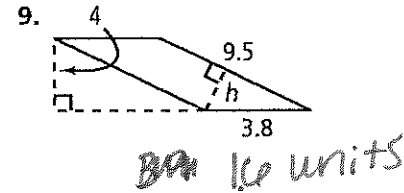
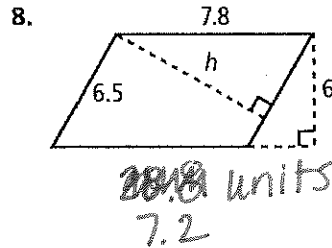
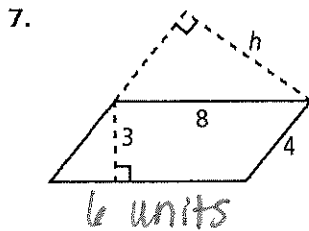
## Areas of Parallelograms and Triangles

Form G

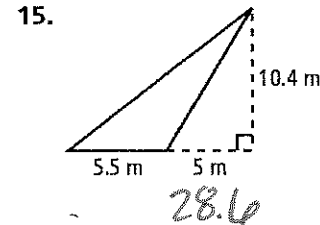
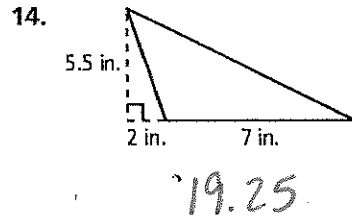
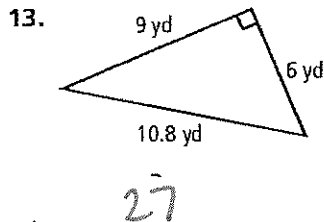
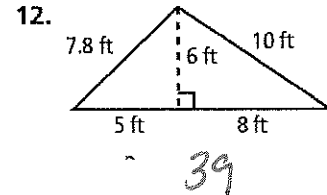
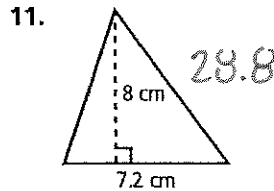
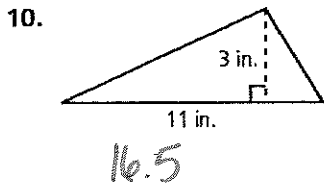
Find the area of each parallelogram.



Find the value of  $h$  for each parallelogram.



Find the area of each triangle.



16. **Algebra** In a parallelogram, a base,  $b$ , and its corresponding height,  $h$ , are in the ratio of 5 : 3. The area is  $135 \text{ mm}^2$ . Find  $b$  and  $h$ .  $15 \text{ mm}$ ;  $9 \text{ mm}$

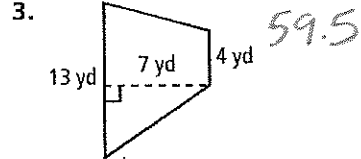
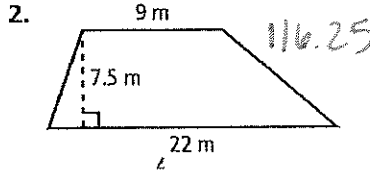
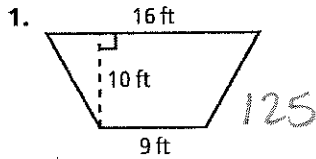
17. **Reasoning** A triangle has an area of  $18 \text{ ft}^2$ . List all the possible positive integers that could represent its base and height.  $1 \text{ ft}$  and  $36 \text{ ft}$ ;  $2 \text{ ft}$  and  $18 \text{ ft}$ ;  $3 \text{ ft}$  and  $12 \text{ ft}$ ;  $4 \text{ ft}$  and  $9 \text{ ft}$ ;  $6 \text{ ft}$  and  $6 \text{ ft}$ ;  $9 \text{ ft}$  and  $4 \text{ ft}$ ;  $12 \text{ ft}$  and  $3 \text{ ft}$ ;  $18 \text{ ft}$  and  $2 \text{ ft}$ ;  $36 \text{ ft}$  and  $1 \text{ ft}$

# 10-2 Practice

Form G

## Areas of Trapezoids, Rhombuses, and Kites

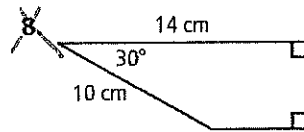
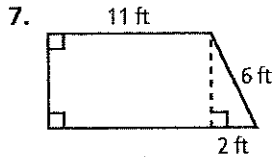
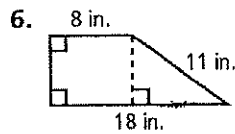
Find the area of each trapezoid.



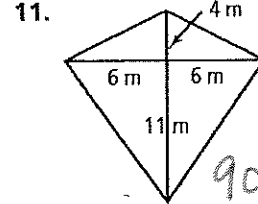
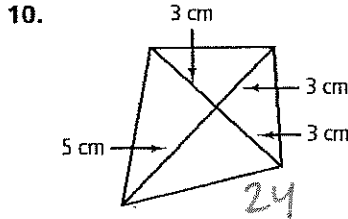
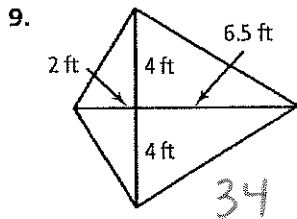
4. Find the area of a trapezoid with bases 20 cm and 14 cm and height 5 cm.  $85 \text{ cm}^2$

5. Find the area of a trapezoid with bases 8 in. and 7 in. and height 5.2 in.  $39 \text{ in.}^2$

Find the area of each trapezoid. If your answer is not an integer, leave it in simplest radical form.



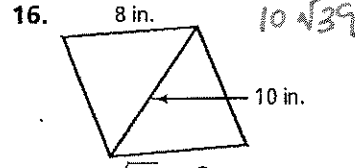
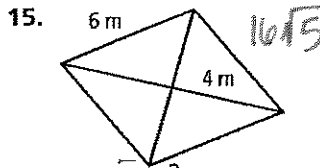
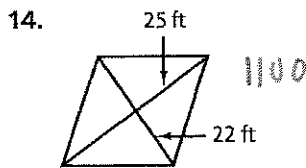
Find the area of each kite.



12. Find the area of a kite with diagonals 12 ft and 3 ft.  $18 \text{ ft}^2$

13. Find the area of a kite with diagonals 16 m and 14 m.  $112 \text{ m}^2$

Find the area of each rhombus.



17. Find the area of a rhombus with diagonals 9 yd and 6 yd.  $27 \text{ yd}^2$

18. Find the area of a rhombus with diagonals 4.5 in. and 5.2 in.  $11.7 \text{ in.}^2$

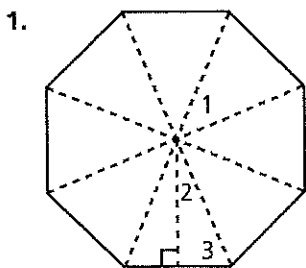
19. **Open-Ended** Draw a rhombus. Measure the lengths of its diagonals. Find its area. Check students' work.

# 10-3 Practice

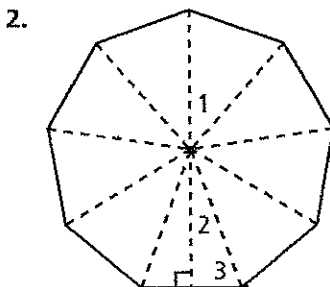
## Areas of Regular Polygons

Form G

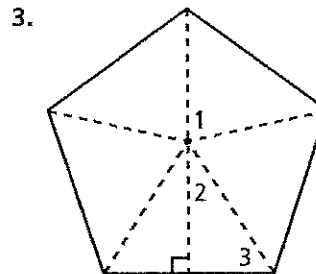
Each regular polygon has radii and apothem as shown. Find the measure of each numbered angle.



45; 22.5; 67.5



40; 20; 70



72; 36; 54

Find the area of each regular polygon with the given apothem  $a$  and side length  $s$ .

4. pentagon,  $a = 4.9$  in.,  $s = 7.1$  in.

86.975

5. hexagon,  $a = 12.1$  ft,  $s = 14$  ft

508.2

6. octagon,  $a = 20.8$  m,  $s = 17.2$  m

7431.64

7. nonagon,  $a = 50.9$  m,  $s = 37$  m

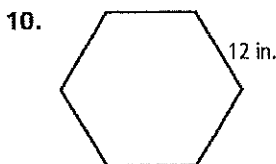
8474.85

8. decagon,  $a = 31$  in.,  $s = 20.1$  in.

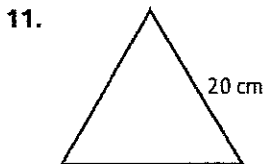
3115.5

~~9. dodecagon,  $a = 40.6$  m,  $s = 21.7$  m~~

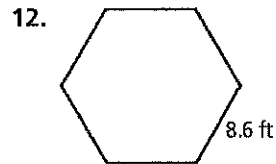
Find the area of each regular polygon. Round your answer to the nearest tenth.



374.1



173.2



192.2

~~13. Your math teacher draws a regular hexagon with a circle circumscribed around it. The radius of the circle is 5 m. To the nearest tenth, what is the area of the hexagon?~~

~~65.0 m<sup>2</sup>~~

Find the measures of the angles formed by (a) two consecutive radii and (b) a radius and a side of the given regular polygon.

~~14. hexagon  
60; 60~~

~~15. square  
90; 45~~

~~16. octagon  
45; 67.5~~

~~17. pentagon  
72; 54~~

~~18. 15-gon  
24; 78~~

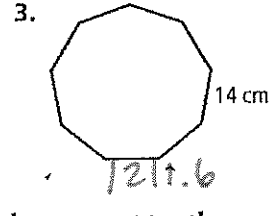
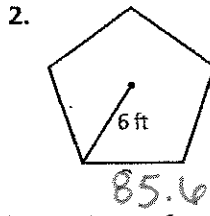
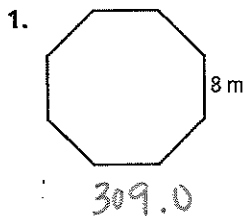
~~19. 20-gon  
18; 81~~

# 10-5 Practice

Trigonometry and Area

Form G

Find the area of each regular polygon. Round your answers to the nearest tenth.



Find the area of each regular polygon. Round your answers to the nearest tenth.

4. hexagon with side length 4 m

41.6

6. nonagon with radius 6 ft

104.1

8. octagon with radius 9 cm

229.1

10. 15-gon with perimeter 120 ft

1129.1

5. pentagon with side length 10 in.

172.0 in.<sup>2</sup>

7. decagon with radius 5 mm

73.5 mm<sup>2</sup>

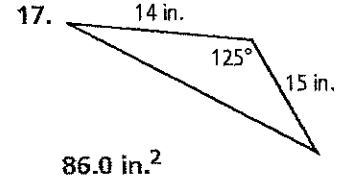
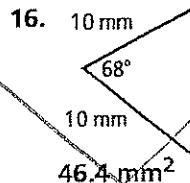
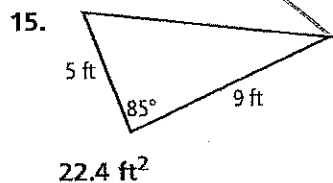
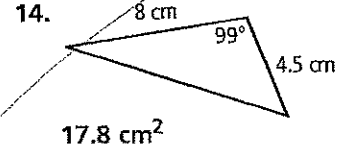
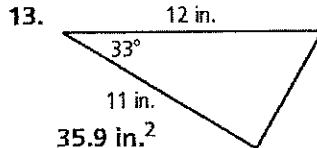
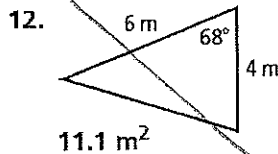
9. 20-gon with radius 3 in.

27.8 in.<sup>2</sup>

11. 18-gon with perimeter 54 m

229.7 m<sup>2</sup>

Find the area of each triangle. Round your answers to the nearest tenth.



18.  $ABCDEFGH$  is a regular octagon with center  $X$  and radius 6 cm. Find each measure. If necessary, round your answers to the nearest tenth.

a.  $m\angle FXE$  45

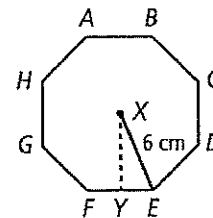
c.  $XY$  5.5 cm

e. perimeter of  $ABCDEFGH$  36.7 cm

b.  $m\angle YXE$  22.5

d.  $FE$  4.6 cm

f. area of  $ABCDEFGH$  101.8 cm<sup>2</sup>



19. Octagonal houses were popular in the 19th century. One reason was that an octagon with the same perimeter as a square encloses a greater area than the square. To the nearest square ft, find the areas of an octagon and a square with perimeters of 80 ft. octagon: 483 ft<sup>2</sup>; square: 400 ft<sup>2</sup>

# 10-7

## Practice

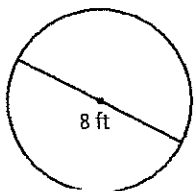
Areas of Circles and Sectors

SKIP

Form K

Find the area of each circle. Leave your answer in terms of  $\pi$ .

1.

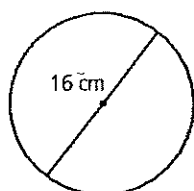


$16\pi$

To start, find the radius. Then use the correct area formula.

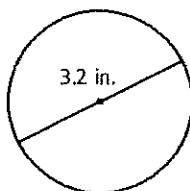
$$r = 8 \div 2 = \boxed{4}; A = \pi r^2 = \pi \cdot \boxed{4}^2$$

2.



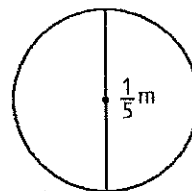
$64\pi$

3.



$2.56\pi$

4.



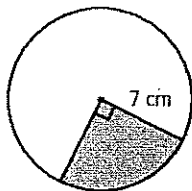
$\frac{1}{100}\pi$

5. Jerry has a lawn sprinkler that sprays water out into a circle. The diameter of the circle is 10 ft. What area can Jerry water with the sprinkler? Round to the nearest tenth.  $78.5$

6. A dog is on a leash that is attached to a pole in the ground. If the leash is 8 ft long, in how much area can the dog move around? Round to the nearest tenth.  $201.1$

Find the area of each shaded sector of a circle. Leave your answer in terms of  $\pi$ .

7.

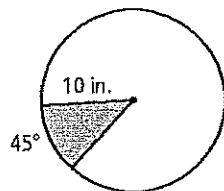


$12.25\pi$

To start, find the ratio of the measure of the arc to 360.

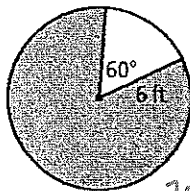
$$\frac{90}{360} = \frac{\boxed{1}}{\boxed{4}}$$

8.



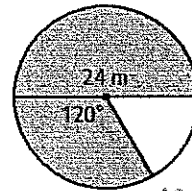
$12.5\pi$

9.



$30\pi$

10.



$120\pi$

Find the area of sector  $QRS$  in  $\odot R$  using the given information. Leave your answer in terms of  $\pi$ .

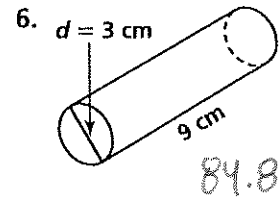
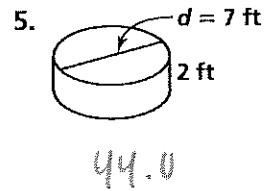
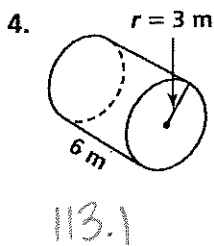
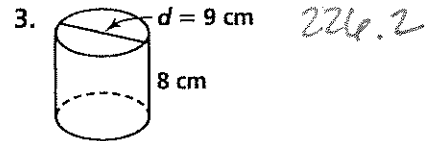
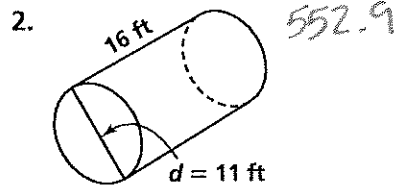
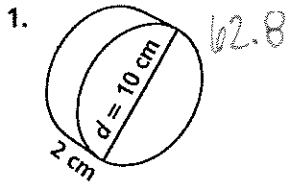
11.  $r = 4$  in.,  $m\widehat{QS} = 135$   $6\pi$

12.  $r = 10$  cm,  $m\widehat{QS} = 90$   $25\pi$

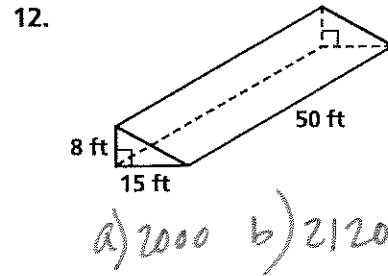
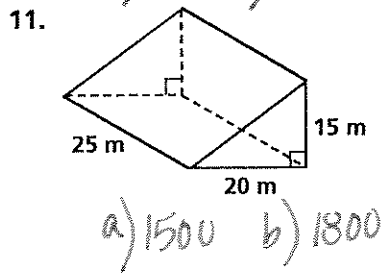
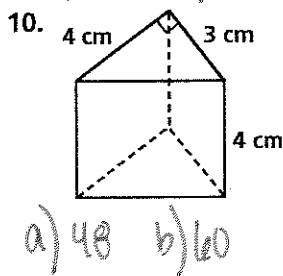
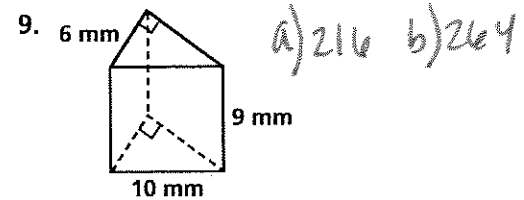
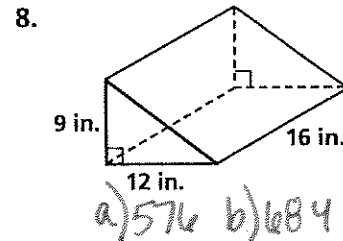
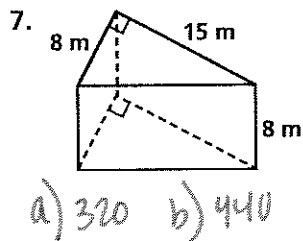
# Practice 11-2

## Surface Areas of Prisms and Cylinders

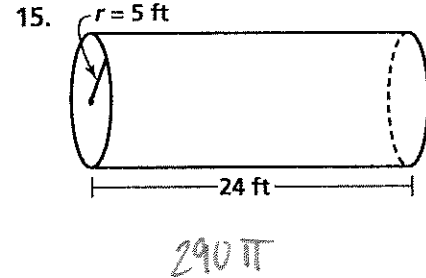
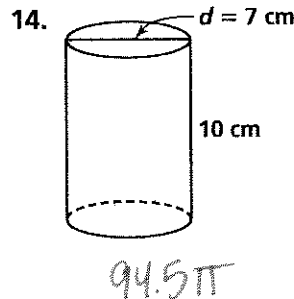
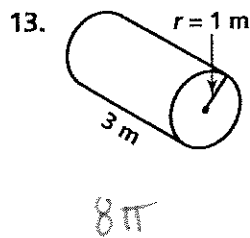
Find the lateral area of each cylinder to the nearest tenth.



Find (a) the lateral area and (b) the surface area of each prism. Round your answers to the nearest whole number.



Find the surface area of each cylinder in terms of  $\pi$ .



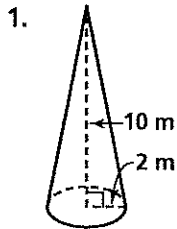
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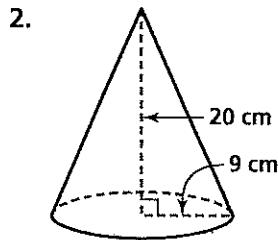
# Practice 11-3

## Surface Areas of Pyramids and Cones

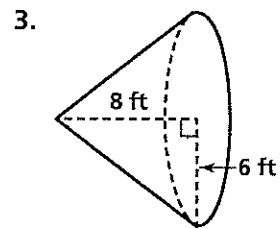
Find the lateral area of each cone to the nearest whole number.



64

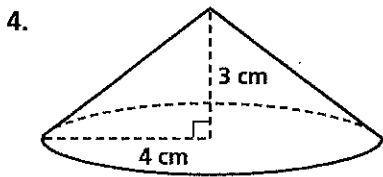


620

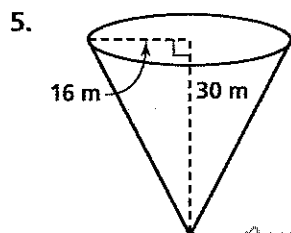


188

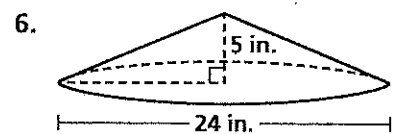
Find the surface area of each cone in terms of  $\pi$ .



~~100\pi~~  $36\pi$

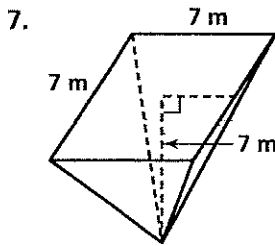


~~100\pi~~  $800\pi$

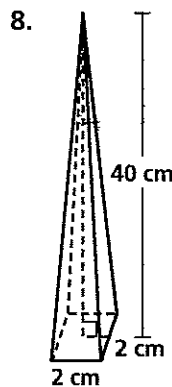


~~100\pi~~  $300\pi$

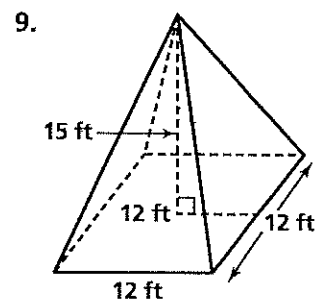
Find the lateral area of each regular pyramid to the nearest tenth.



109.6

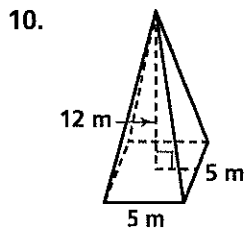


160.0

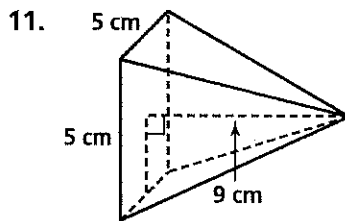


387.7

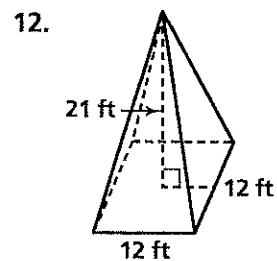
Find the surface area of each regular pyramid to the nearest tenth.



147.6



118.4

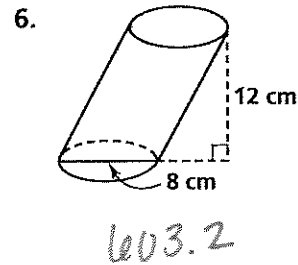
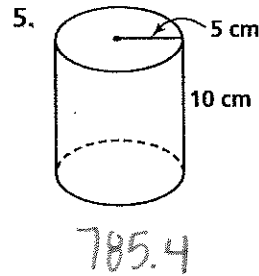
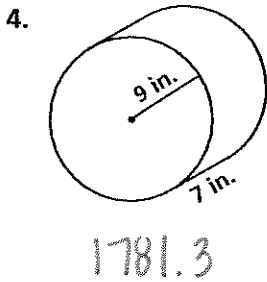
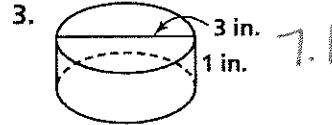
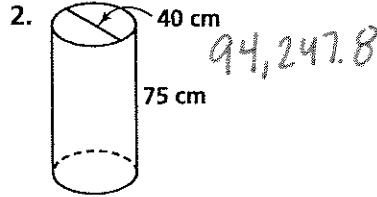
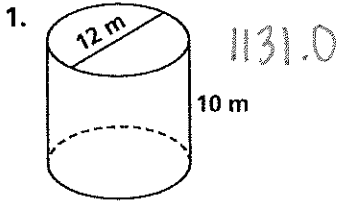


668.2

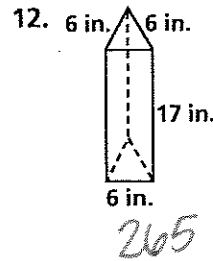
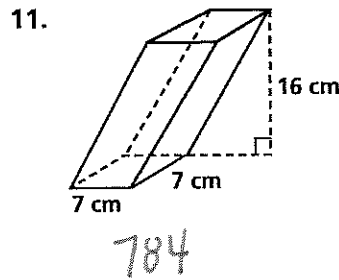
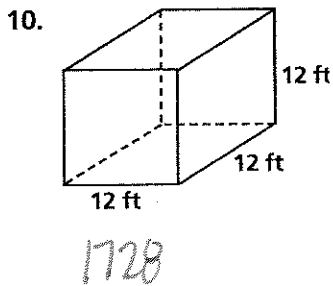
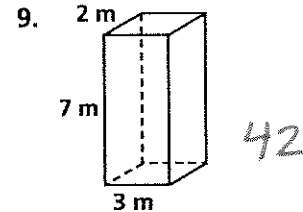
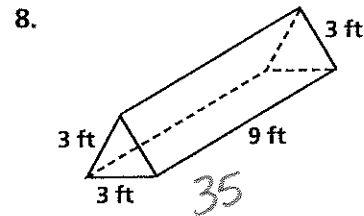
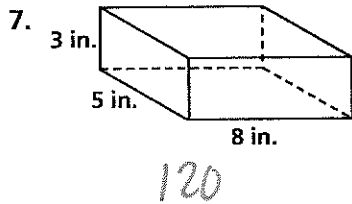
# Practice 11-4

## Volumes of Prisms and Cylinders

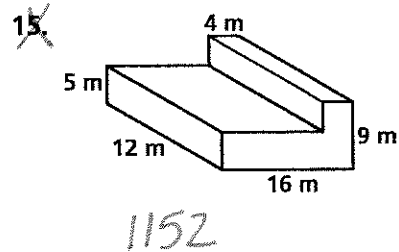
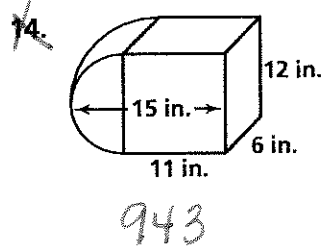
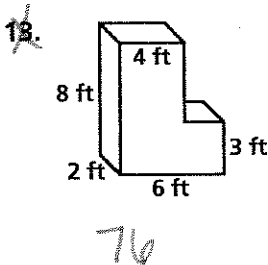
Find the volume of each cylinder to the nearest tenth.



Find the volume of each prism to the nearest whole number.



Find the volume of each composite figure to the nearest whole number.

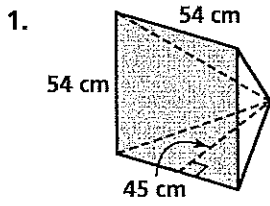




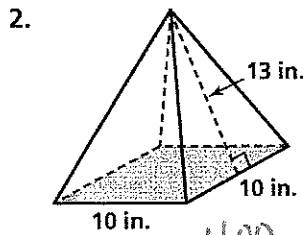
# Practice 11-5

## Volumes of Pyramids and Cones

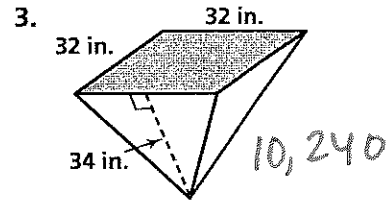
Find the volume of each pyramid.



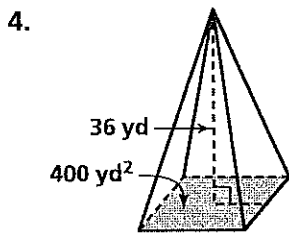
34,992



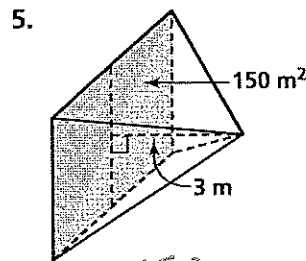
400



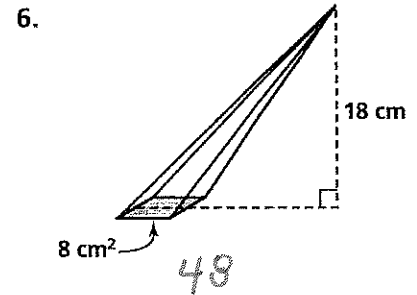
10,240



4860

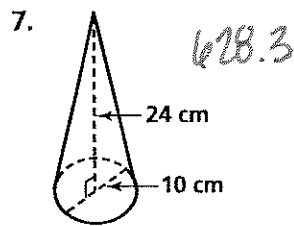


150

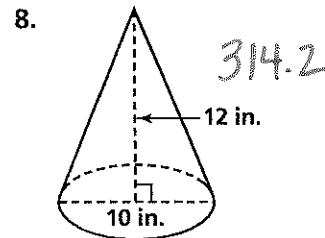


48

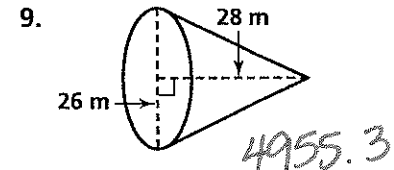
Find the volume of each cone. Round your answers to the nearest tenth.



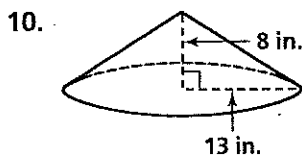
628.3



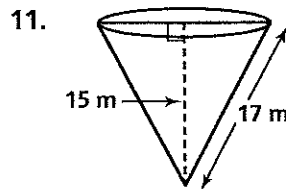
314.2



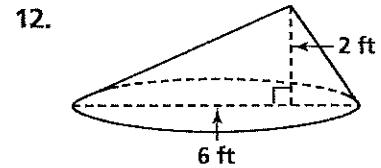
4955.3



1415.8

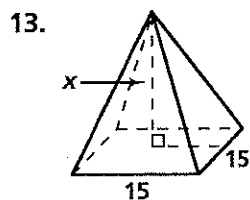


1005.3



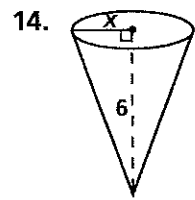
18.8

Algebra Find the value of the variable in each figure.



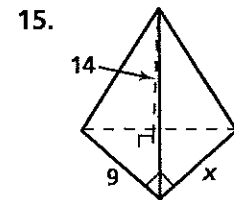
Volume = 1500

20



Volume =  $8\pi$

2



Volume = 126

6

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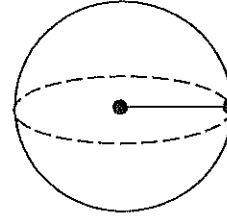
© Pearson Education, Inc., publishing as Pearson Prentice Hall.

## Surface Areas and Volume of Spheres

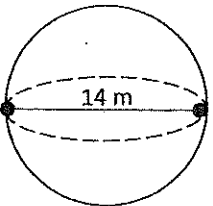
Objective: To find the surface area of spheres given the diameter, radius, or circumference.

SPHERE	
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FORMULA FOR SURFACE AREA OF A SPHERE
$SA = 4\pi r^2$



EXAMPLES: Find the surface area of each of the following

a)   $196\pi \approx 615.8$

b) A rubber ball that has a circumference of  $13\pi$  cm.

$$169\pi \approx 530.9$$

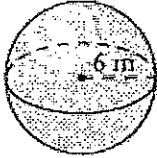
c) A spherical fruit which has a circumference of 18 inches.  
Round your answer to the nearest square inch.

$$103$$

Volume of a Sphere	$V = \frac{4}{3} \pi r^3$	
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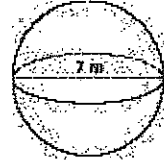
EX 1: Find the volume of the sphere. Leave your answers in terms of  $\pi$  and round to nearest tenth.

a.



$288\pi \approx 904.8$

b.



$57.16\pi \approx 179.6$

EX 2: The volume of a sphere is  $5000 \text{ m}^3$ . What is the surface area of the sphere? Round your answer to the nearest tenth.

$1414.0$

EX 3: The volume of a sphere is  $1 \text{ in}^3$ . Find its surface area to the nearest tenth.

$4.8$

EX 4: The surface area of a sphere is  $45,240 \text{ yd}^2$ . Find the volume of the sphere. Round your answer to the nearest tenth.

$904.8$

EX 5: Use the given circumference to approximate the volume of each object. Round your answer to the nearest whole number.

a. a baseball with  $C = 24 \text{ cm}$

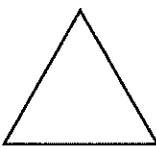
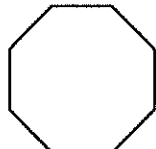
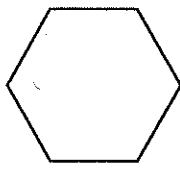
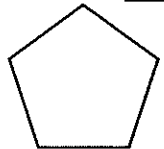
$233$

b. a volleyball with  $C = 69 \text{ cm}$

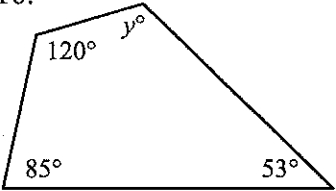
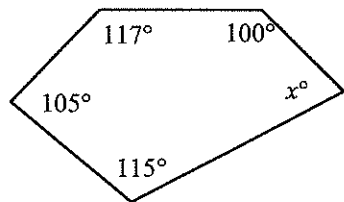
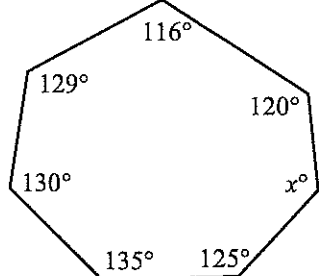
$5547$



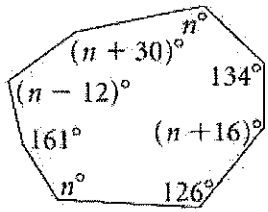
Name each **regular** polygon. Find the measure the indicated angles.

<p>1. Name: <u>Triangle</u></p>  <p>Sum of Interior <math>\angle</math>'s: <u>180</u>            One Interior <math>\angle</math>: <u>60</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>120</u></p>	<p>2. Name: <u>Octagon</u></p>  <p>Sum of Interior <math>\angle</math>'s: <u>1080</u>            One Interior <math>\angle</math>: <u>135</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>45</u></p>	<p>3. Name: <u>Hexagon</u></p>  <p>Sum of Interior <math>\angle</math>'s: <u>720</u>            One Interior <math>\angle</math>: <u>120</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>60</u></p>
<p>4. Name: <u>Pentagon</u></p>  <p>Sum of Interior <math>\angle</math>'s: <u>540</u>            One Interior <math>\angle</math>: <u>108</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>72</u></p>	<p>5. Nonagon</p> <p>Sum of Interior <math>\angle</math>'s: <u>1260</u>            One Interior <math>\angle</math>: <u>140</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>40</u></p>	<p>6. Dodecagon</p> <p>Sum of Interior <math>\angle</math>'s: <u>1800</u>            One Interior <math>\angle</math>: <u>150</u>            Sum of Exterior <math>\angle</math>'s: <u>360</u>            One Exterior <math>\angle</math>: <u>30</u></p>
<p>7. If the sum of the interior angles of a regular polygon is <math>900^\circ</math>, find the number of sides.</p> <p style="text-align: center;"><u>7</u></p>	<p>8. If the measure of one interior angle of a regular polygon is <math>144^\circ</math>, find the number of sides.</p> <p style="text-align: center;"><u>10</u></p>	<p>9. If the measure of one interior angle of a regular polygon is <math>160^\circ</math>, find the number of sides.</p> <p style="text-align: center;"><u>18</u></p>

Find the value of each variable.

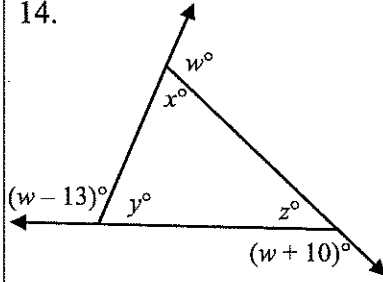
<p>10.</p>  <p style="text-align: center;"><u>102</u></p>	<p>11.</p>  <p style="text-align: center;"><u>103</u></p>	<p>12.</p>  <p style="text-align: center;"><u>149</u></p>
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13.



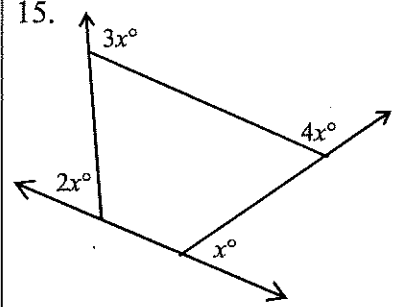
125

14.



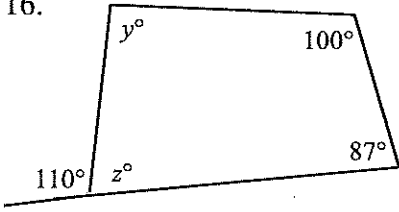
$w = 121$     $z = 49$   
 $x = 59$     $y = 72$

15.



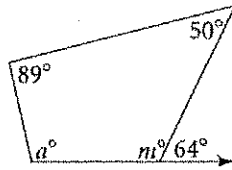
$x = 36$

16.



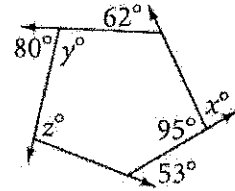
$z = 70$   
 $y = 103$

17.



$m = 116$   
 $a = 105$

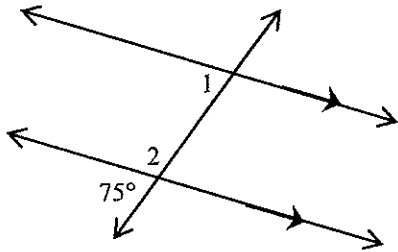
18.



$y = 100$     $z = 100$   
 $x = 85$

Find  $m\angle 1$  and then the  $m\angle 2$ . Justify each answer. On 18, find  $m\angle 1$ , then the  $m\angle 2$ , and then  $m\angle 3$ .

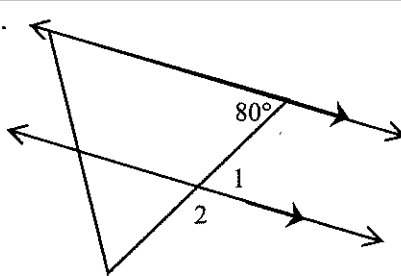
19.



$m\angle 1 = \underline{\hspace{2cm}}$  because                     

$m\angle 2 = \underline{\hspace{2cm}}$  because                     

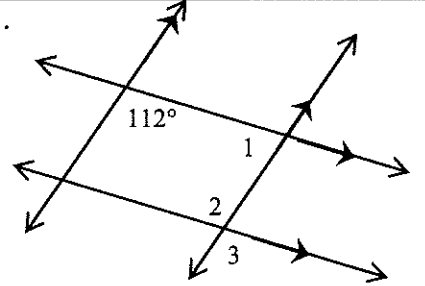
20.



$m\angle 1 = \underline{\hspace{2cm}}$  because                     

$m\angle 2 = \underline{\hspace{2cm}}$  because                     

21.



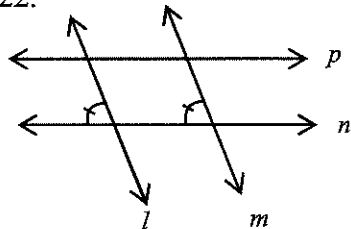
$m\angle 1 = \underline{\hspace{2cm}}$  because                     

$m\angle 2 = \underline{\hspace{2cm}}$  because                     

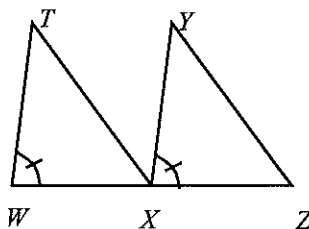
$m\angle 3 = \underline{\hspace{2cm}}$  because                     

Based on the markings which lines or segments must be parallel? Justify your answer.

22.



23.



24.

