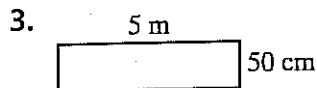
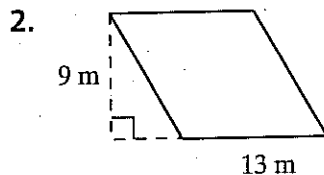
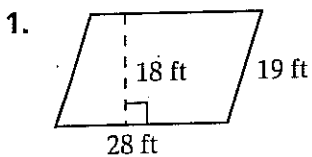


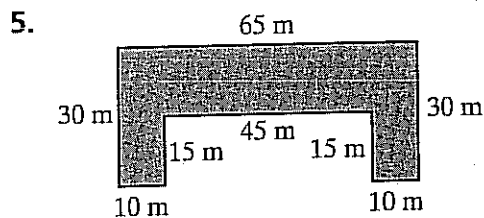
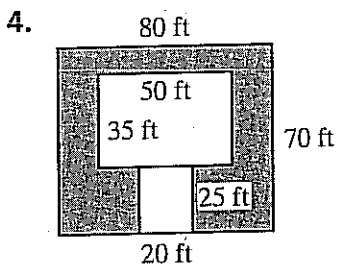
# Practice 10-1

Area: Parallelograms

Find the area of each parallelogram.



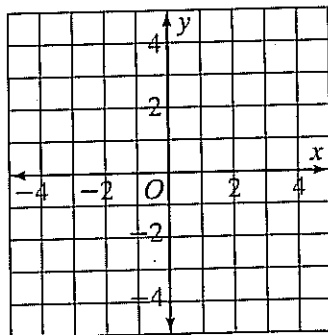
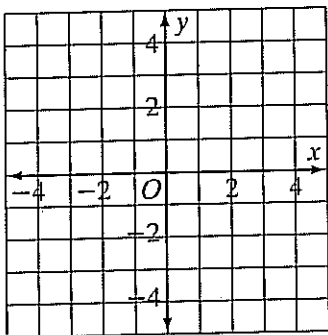
Find the area of each shaded region. Assume that all angles that appear to be right angles are right angles.



The vertices of a parallelogram are given. Draw each parallelogram. Find its area.

6.  $P(1, 1), Q(3, 1), R(2, 4), S(4, 4)$

7.  $J(-3, 2), K(1, 2), M(-1, -3), L(3, -3)$

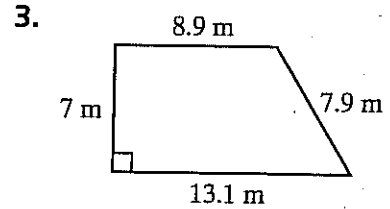
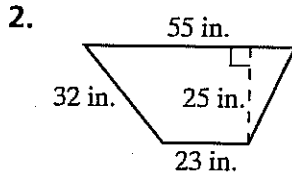
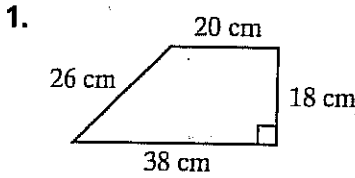


8. The perimeter of a square is 72 in. What is its area?

# Practice 10-2

## Area: Triangles and Trapezoids

Find the area of each trapezoid.

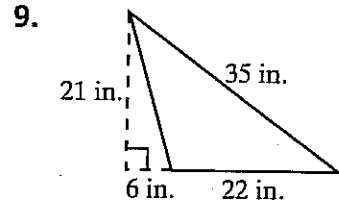
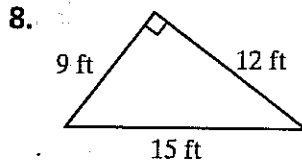
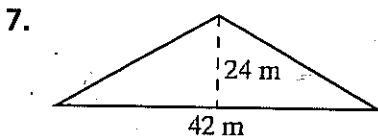


4. base<sub>1</sub> = 13 in.  
base<sub>2</sub> = 8 in.  
height = 5 in.

5. base<sub>1</sub> = 24.6 cm  
base<sub>2</sub> = 9.4 cm  
height = 15 cm

6. base<sub>1</sub> = 2.25 ft  
base<sub>2</sub> = 4.75 ft  
height = 3.5 ft

Find the area of each triangle.

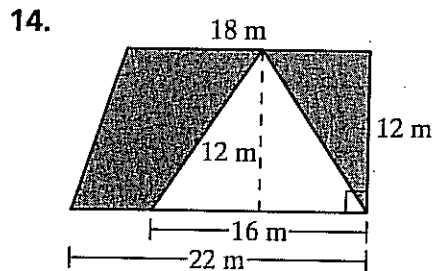
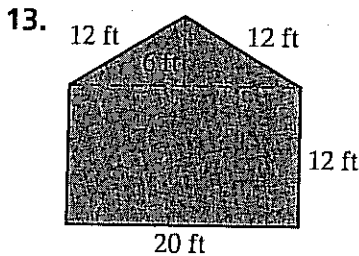


10. base = 24 in.  
height = 9 in.  
area = \_\_\_\_\_

11. height = 27 cm  
base = 34 cm  
area = \_\_\_\_\_

12. base = 40 ft  
height = 8.25 ft  
area = \_\_\_\_\_

Find the area of each shaded region.



15. A triangle has an area of  $36 \text{ cm}^2$  and a base of 6 cm. What is the height of the triangle?

# Practice 10-3

Area: Circles

Find the area of each circle. Give an exact area and an approximate area to the nearest tenth.

1.  $r = 7$  m

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

2.  $d = 18$  cm

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

3.  $d = 42$  m

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

4.  $r = 35$  km

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

5.  $d = 22$  cm

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

6.  $r = 25$  ft

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

7.  $r = 3\frac{1}{2}$  mi

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

8.  $d = 5$  in.

$A =$  \_\_\_\_\_

$A \approx$  \_\_\_\_\_

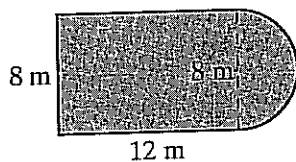
9.  $d = 9.8$  mm

$A =$  \_\_\_\_\_

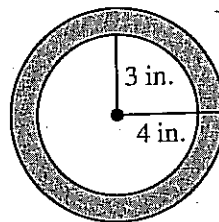
$A \approx$  \_\_\_\_\_

Find the area of each shaded region to the nearest tenth.

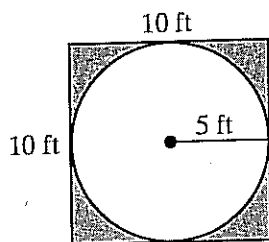
10.



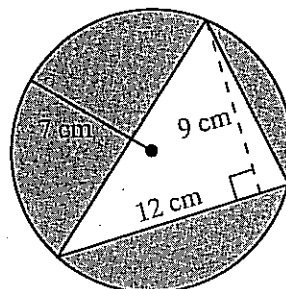
11.



12.



13.



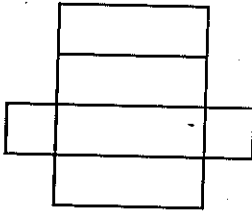
14. A goat is tethered to a stake in the ground with a 5-m rope. The goat can graze to the full length of the rope a full  $360^\circ$  around the stake. How much area does the goat have in which to graze?

# Practice 10-4

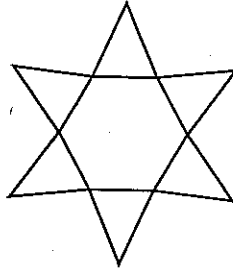
Space Figures

Name the space figure you can form from each net.

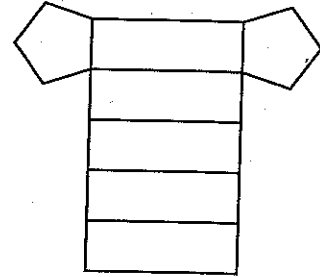
1.



2.

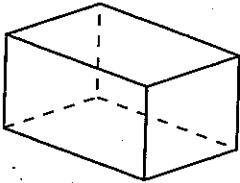


3.



For each figure, describe the base(s) and name the figure.

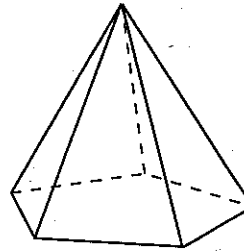
4.



\_\_\_\_\_

\_\_\_\_\_

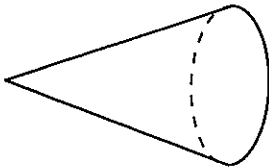
5.



\_\_\_\_\_

\_\_\_\_\_

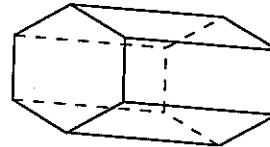
6.



\_\_\_\_\_

\_\_\_\_\_

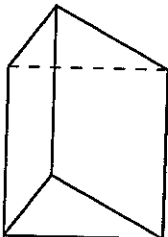
7.



\_\_\_\_\_

\_\_\_\_\_

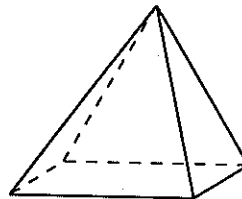
8.



\_\_\_\_\_

\_\_\_\_\_

9.



\_\_\_\_\_

\_\_\_\_\_

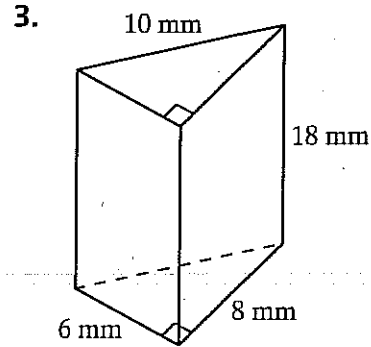
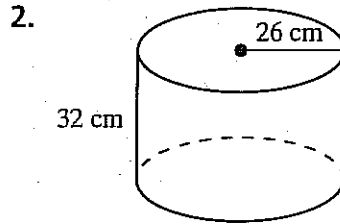
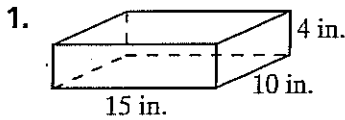
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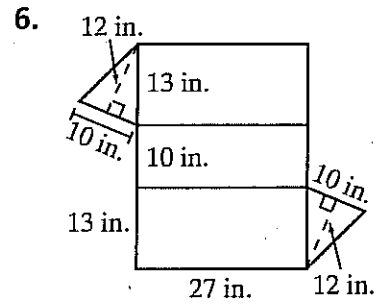
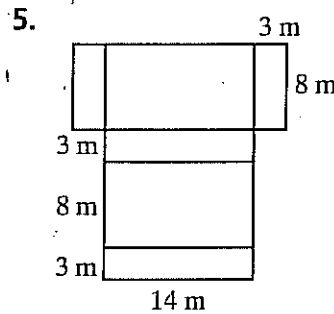
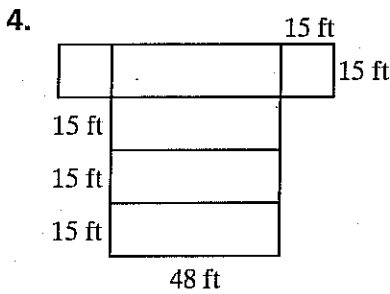
# Practice 10-5

## Surface Area: Prisms and Cylinders

Find the surface area of each space figure. If the answer is not a whole number, round to the nearest tenth.



Find the surface area of the space figure represented by each net to the nearest square unit.



7. A room is 18 ft long, 14 ft wide, and 8 ft high.

a. Find the cost of painting the four walls with two coats of paint costing \$9.50 per gallon. Each gallon covers 256 ft<sup>2</sup> with one coat.

\_\_\_\_\_

b. Find the cost of carpeting the floor with carpet costing \$5/ft<sup>2</sup>.

\_\_\_\_\_

c. Find the cost of covering the ceiling with acoustic tile costing \$7.50/ft<sup>2</sup>.

\_\_\_\_\_

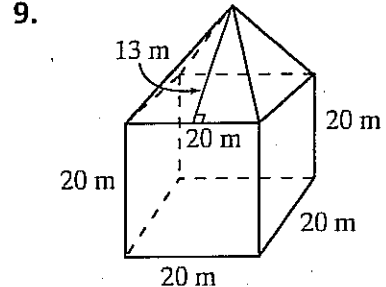
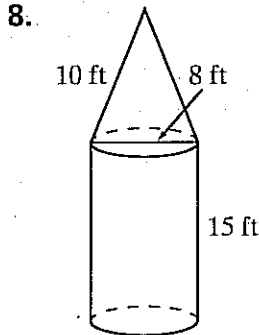
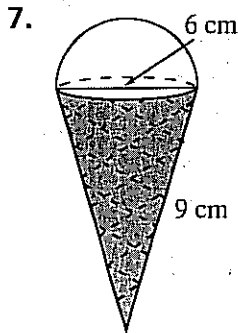
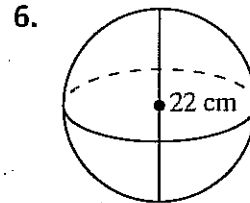
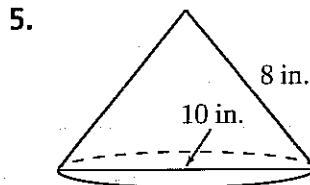
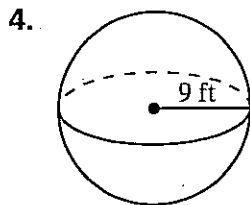
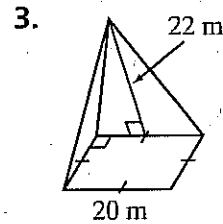
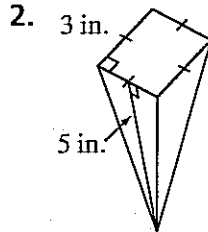
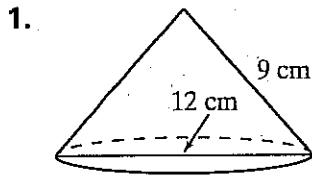
d. Find the total cost of renovating the walls, floor, and ceiling.

\_\_\_\_\_

# Practice 10-6

## Surface Area: Pyramids, Cones, and Spheres

Find the surface area of each space figure to the nearest square unit.



10. a hemisphere with diameter 70 cm

\_\_\_\_\_

11. A cone and a square-based pyramid have slant heights of 6 in. The diameter for the cone and the base edge of the pyramid are both 8 in.

a. Which space figure has the greater surface area?

\_\_\_\_\_

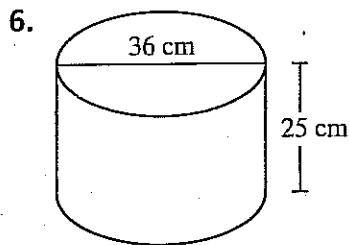
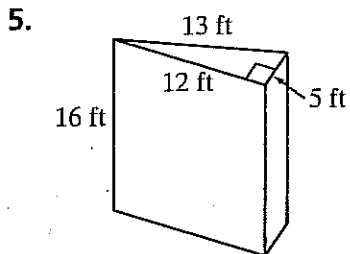
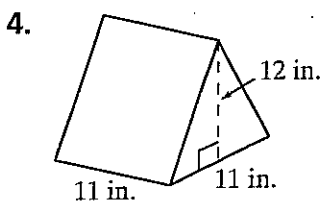
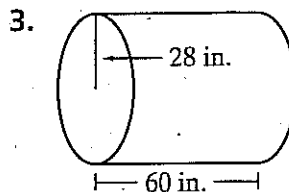
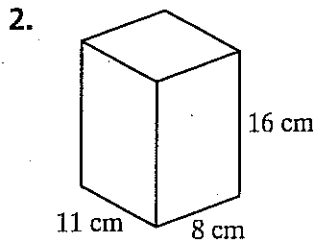
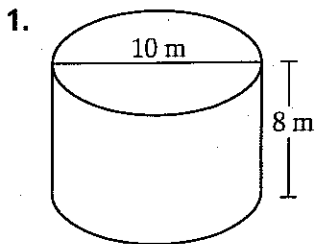
b. By how much does the greater surface area exceed the lesser?  
Use 3.14 for  $\pi$ .

\_\_\_\_\_

# Practice 10-7

## Volume: Prisms and Cylinders

Find the volume of each prism or cylinder to the nearest cubic unit.



7. prism  
rectangular base:  
8 in. by 6 in.  
height: 7 in.

8. cylinder  
radius: 14 in.  
height: 18 in.

9. cylinder  
radius: 5 cm  
height: 11.2 cm

10. prism  
square base:  
3.5 ft on a side  
height: 6 ft

11. cube  
sides: 13 m

12. cylinder  
diameter: 5 ft  
height: 9 ft

13. A water storage tank has a cylindrical shape. The base has a diameter of 18 m and the tank is 32 m high. How much water, to the nearest cubic unit, can the tank hold?

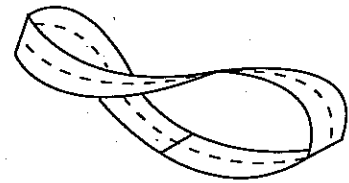
14. A tent in the shape of a triangular prism has a square base with a side of 8 feet and a height of 6 feet. What is the volume of the tent?

# Practice 10-8

Make a Model

## Solve by making a model.

1. A narrow strip of paper is twisted once, then joined at the ends with glue or tape. The strip is then cut lengthwise along the dotted line shown.



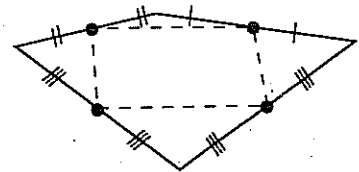
- a. Guess the results.

\_\_\_\_\_

- b. Make and cut a model as directed. What are the results?

\_\_\_\_\_

2. The midpoint of a segment is the point that divides the segment into two segments of equal length. A quadrilateral with unequal sides is drawn. The midpoints of the four sides are found and connected in order.



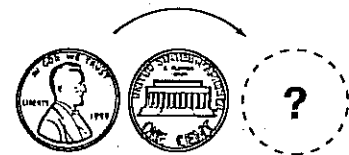
- a. Guess what kind of quadrilateral is formed.

\_\_\_\_\_

- b. Draw four quadrilaterals with unequal sides and connect the midpoints of adjacent sides. What kind of quadrilaterals appear to have been formed?

\_\_\_\_\_

3. A penny with Lincoln's head upright is rolled along the edge of another penny as shown in the figure.



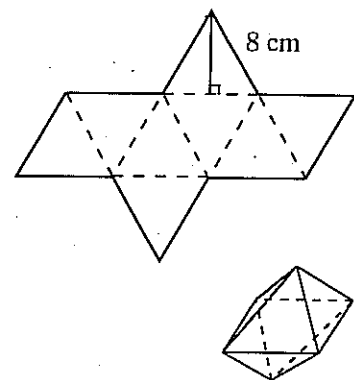
- a. At the end, do you think Lincoln will be right-side-up or upside-down?

\_\_\_\_\_

- b. Conduct an experiment to find out. What are your results?

\_\_\_\_\_

4. A net for an octahedron is shown. All the sides are congruent, equilateral triangles. Cut and fold on the dotted lines. Find the surface area of the octahedron. Round to the nearest square centimeter.



\_\_\_\_\_

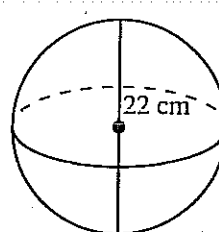
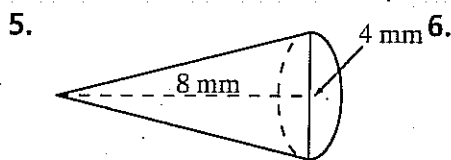
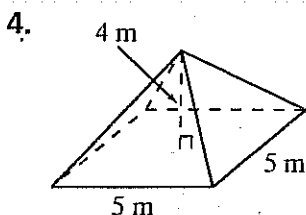
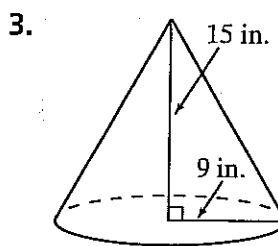
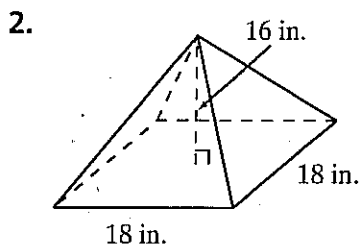
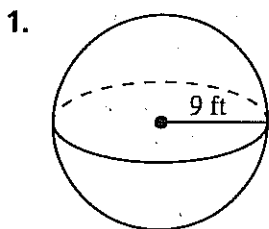
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# Practice 10-9

Volume: Pyramids, Cones, and Spheres

Find the volume of each figure to the nearest cubic unit.



7. square-based pyramid  
 $s = 9$  in.  
 $h = 12$  in.

8. cone  
 $r = 8$  cm  
 $h = 15$  cm

9. sphere  
 $r = 6$  in.

10. You make a snow figure using three spheres with radii of 12 in., 10 in., and 8 in., with the biggest on the bottom and the smallest for the head. You get snow from a rectangular area that is 6 ft by 7 ft.
- Find the volume of snow in your snow figure to the nearest hundredth of a cubic inch.

bottom: \_\_\_\_\_ middle: \_\_\_\_\_

head: \_\_\_\_\_ total: \_\_\_\_\_

- Find the area in square inches from which you get snow.

\_\_\_\_\_

- How deep does the snow need to be before you have enough snow to make a figure? State your answer to the nearest  $\frac{1}{4}$  in.

\_\_\_\_\_

# Reteaching 10-1

Area: Parallelograms

Draw the parallelogram with vertices  $A(-2, 4)$ ,  $B(1, 4)$ ,  $C(0, -2)$ , and  $D(-3, -2)$ . Find its area.

Plot the four points and connect them to form the parallelogram. To find the area, find the length of a base and the height to that base. Any one of the four sides could be used as the base. The easiest side to use is  $\overline{DC}$ .

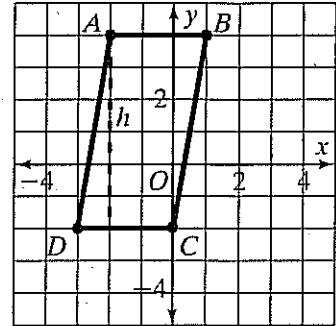
Count in the figure.

$DC = 3$  units, so  $b = 3$ .

Draw the height as a dashed line from  $A$ , perpendicular to  $\overline{DC}$ .

Count in the figure,  $h = 6$ .

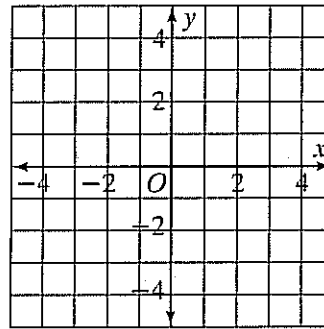
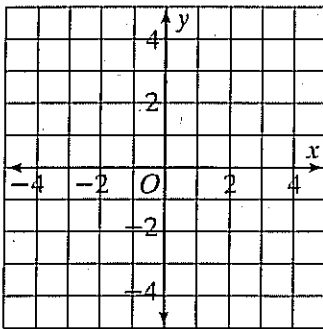
So  $A = bh = 3(6) = 18$  units<sup>2</sup>.



The vertices of a parallelogram are given. Draw each parallelogram. Find its area.

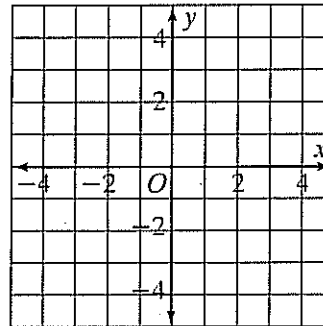
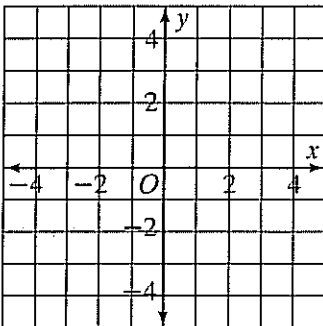
1.  $E(-1, 2)$ ,  $F(3, 2)$ ,  $G(1, 1)$ ,  $H(-3, 1)$

2.  $M(-2, 1)$ ,  $N(2, 1)$ ,  $Q(-3, -2)$ ,  $P(1, -2)$



3.  $R(1, 3)$ ,  $S(3, 3)$ ,  $U(-1, -4)$ ,  $T(1, -4)$

4.  $V(-3, -1)$ ,  $W(5, -1)$ ,  $Y(-4, -3)$ ,  $X(4, -3)$



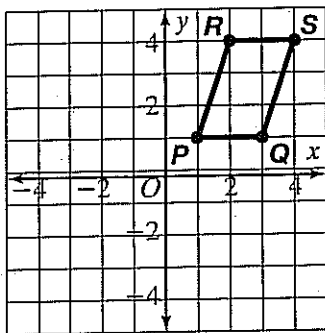
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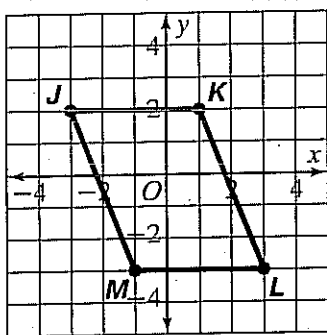
# Chapter 10 Answers

## Practice 10-1

1. 504 ft<sup>2</sup> 2. 117 m<sup>2</sup> 3. 25,000 cm<sup>2</sup>  
 4. 3,350 ft<sup>2</sup> 5. 1,275 m<sup>2</sup>  
 6. 6 units<sup>2</sup>



7. 20 units<sup>2</sup>



8. 324 in.<sup>2</sup>

## Practice 10-2

1. 522 cm<sup>2</sup> 2. 975 in.<sup>2</sup> 3. 77 m<sup>2</sup> 4. 52.5 in.<sup>2</sup>  
 5. 255 cm<sup>2</sup> 6. 12.25 ft<sup>2</sup> 7. 504 m<sup>2</sup> 8. 54 ft<sup>2</sup>  
 9. 231 in.<sup>2</sup> 10. 108 in.<sup>2</sup> 11. 459 cm<sup>2</sup> 12. 165 ft<sup>2</sup>  
 13. 300 ft<sup>2</sup> 14. 144 m<sup>2</sup> 15. 12 cm

## Practice 10-3

1.  $49\pi$  m<sup>2</sup>, 153.9 m<sup>2</sup> 2.  $81\pi$  cm<sup>2</sup>, 254.3 cm<sup>2</sup>  
 3.  $441\pi$  m<sup>2</sup>, 1,384.7 m<sup>2</sup> 4.  $1,225\pi$  km<sup>2</sup>, 3,846.5 km<sup>2</sup>  
 5.  $121\pi$  cm<sup>2</sup>, 379.9 cm<sup>2</sup>  
 6.  $625\pi$  ft<sup>2</sup>, 1,962.5 ft<sup>2</sup> 7.  $12.25\pi$  mi<sup>2</sup>, 38.5 mi<sup>2</sup>  
 8.  $6.25\pi$  in.<sup>2</sup>, 19.6 in.<sup>2</sup> 9.  $24.01\pi$  mm<sup>2</sup>, 75.4 mm<sup>2</sup>  
 10. 121.1 m<sup>2</sup> 11. 22.0 in.<sup>2</sup>  
 12. 21.5 ft<sup>2</sup> 13. 99.9 cm<sup>2</sup> 14. 78.5 m<sup>2</sup>

## Practice 10-4

1. square prism 2. hexagonal pyramid  
 3. pentagonal prism 4. The bases are rectangles. rectangular prism  
 5. The base is a pentagon. pentagonal pyramid  
 6. The base is a circle. cone  
 7. The bases are hexagons. hexagonal prism  
 8. The bases are triangles. triangular prism

9. The base is a rectangle. rectangular pyramid

## Practice 10-5

1. 500 in.<sup>2</sup> 2. 9,470.2 cm<sup>2</sup> 3. 480 mm<sup>2</sup>  
 4. 3,330 ft<sup>2</sup> 5. 356 m<sup>2</sup> 6. 1,092 in.<sup>2</sup> 7.a. \$38  
 b. \$1,260 c. \$1,890 d. \$3,188

## Practice 10-6

1. 283 cm<sup>2</sup> 2. 39 in.<sup>2</sup> 3. 1,280 m<sup>2</sup> 4. 1,017 ft<sup>2</sup>  
 5. 204 in.<sup>2</sup> 6. 1,520 cm<sup>2</sup> 7. 141 cm<sup>2</sup>  
 8. 553 ft<sup>2</sup> 9. 2,520 m<sup>2</sup> 10. 11,540 cm<sup>2</sup>  
 11.a. pyramid b. 34.4 in.<sup>2</sup>

## Practice 10-7

1. 628 m<sup>3</sup> 2. 1,408 cm<sup>3</sup> 3. 147,706 in.<sup>3</sup>  
 4. 726 in.<sup>3</sup> 5. 480 ft<sup>3</sup> 6. 25,434 cm<sup>3</sup>  
 7. 336 in.<sup>3</sup> 8. 11,078 in.<sup>3</sup> 9. 879 cm<sup>3</sup>  
 10. 74 ft<sup>3</sup> 11. 2,197 m<sup>3</sup> 12. 177 ft<sup>3</sup>  
 13. 8,139 m<sup>3</sup> 14. 192 ft<sup>3</sup>

## Practice 10-8

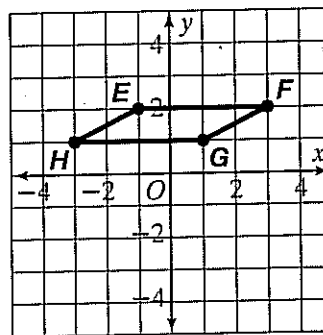
- 1.a. Answers may vary. b. A single loop results.  
 2.a. Answers may vary. b. parallelograms  
 3.a. Answers may vary. b. Lincoln is upright.  
 4. 222 cm<sup>2</sup>

## Practice 10-9

1. 3,052 ft<sup>3</sup> 2. 1,728 in.<sup>3</sup> 3. 1,272 in.<sup>3</sup>  
 4. 33 m<sup>3</sup> 5. 33 mm<sup>3</sup> 6. 5,572 cm<sup>3</sup> 7. 324 in.<sup>3</sup>  
 8. 1,005 cm<sup>3</sup> 9. 904 in.<sup>3</sup> 10.a. 7,234.56 in.<sup>3</sup>,  
 4,186.67 in.<sup>3</sup>, 2,143.57 in.<sup>3</sup>, 13,564.8 in.<sup>3</sup>  
 b. 6,048 in.<sup>2</sup> c. about  $2\frac{1}{4}$  in.

## Reteaching 10-1

1. 4 units<sup>2</sup>



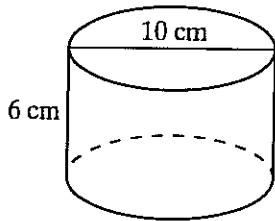
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# Cumulative Review (continued)

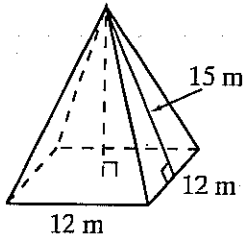
## Chapter 10

Find the surface area and volume of each figure to the nearest tenth.



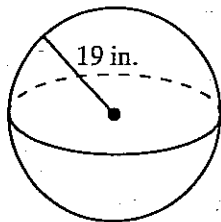
15. S.A.  $\approx$  \_\_\_\_\_

16.  $V \approx$  \_\_\_\_\_



17. S.A. = \_\_\_\_\_

18.  $V =$  \_\_\_\_\_



19. S.A.  $\approx$  \_\_\_\_\_

20.  $V \approx$  \_\_\_\_\_

21. Compare the volumes of the prism and pyramid shown.

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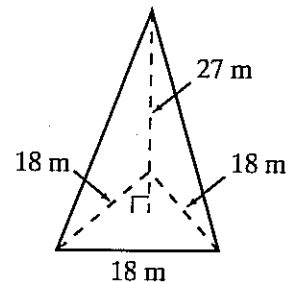
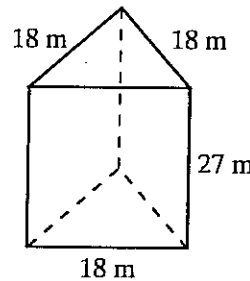
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