

4/3  
TUE

STUDY GUIDE

FOLDABLES™	VOCABULARY PUZZLEMAKER	BUILD YOUR VOCABULARY
Use your Chapter 12 Foldable to help you study for your chapter test.	To make a crossword puzzle, word search, or jumble puzzle of the vocabulary words in Chapter 12, go to:  <a href="http://www.glencoe.com/sec/math/t_resources/free/index.php">www.glencoe.com/sec/math/t_resources/free/index.php</a>	You can use your completed Vocabulary Builder (pages 228–229) to help you solve the puzzle.

12-1

Solid Figures

Complete each sentence.

- Two faces of a polyhedron intersect at a(n) edge.
- A triangular pyramid is called a tetrahedron.
- A solid is a figure that encloses a part of space.
- Three faces of a polyhedron intersect at a point called a(n) vertex.

\* vocab

12-2

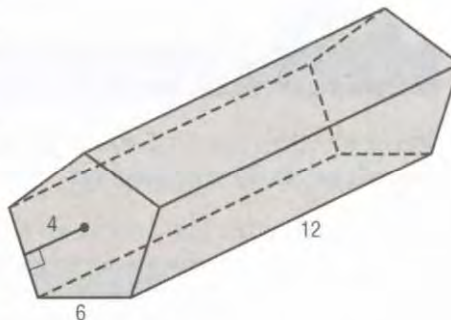
Surface Areas of Prisms and Cylinders

Find the lateral area and surface area of each solid to the nearest hundredth.

- a regular pentagonal prism with apothem  $a = 4$ , side length  $s = 6$ , and height  $h = 12$

a.  $L =$  360 units<sup>2</sup>

b.  $S =$  480 units<sup>2</sup>



\* Lateral Area of a Prism

$L = Ph$

Surface Area of a Prism

$S = Ph + 2B$

Surface Area of a Cylinder

of a Cylinder

$S = 2\pi r h + 2\pi r^2$

Lateral Area of Cylinder  
 $L = 2\pi r h$

- a cylinder with radius  $r = 42$  and height  $h = 10$

a.  $L \approx$  2638.94 units<sup>2</sup> b.  $S \approx$  13,722.48 units<sup>2</sup>

*square*  $B = s^2$ , *triangle*  $\frac{1}{2}bh$ , *rect*  $lw$ ,  $\frac{1}{2}ap$  *regular polygon* \* Volume of Prisms  
 $V = Bh$   
Volume of Cylinder  
 $V = \pi r^2 h$

12-3

Volumes of Prisms and Cylinders

Find the volume of each solid and round to the nearest hundredth.

7. the regular pentagonal prism from Exercise #5

720 units<sup>3</sup>

8. How much water will a 24 in. by 15 in. by 10 in. fish tank hold?

3600 in<sup>3</sup>

12-4

Surface Areas of Pyramids and Cones

Find the lateral and surface areas of each solid. Round to the nearest hundredth if necessary.

9. a rectangular pyramid with base dimensions 2 ft by 3 ft and lateral height  $h = 1$  ft

a.  $L \approx 5 \text{ ft}^2$

b.  $S \approx 11 \text{ ft}^2$

\* Lateral Area (Pyramid)  
 $L = \frac{1}{2}Pl$  *slant height*  
 Surface Area (Pyramid)  
 $S = B + \frac{1}{2}Pl$

10. a cone with diameter 3.6 cm and lateral height 2.4 cm

a.  $L \approx 13.57 \text{ cm}^2$

b.  $S \approx 23.75 \text{ cm}^2$

\* Lateral Area (Cone)  
 $L = \pi r l$   
 Surface Area (Cone)  $\rightarrow S = \pi r^2 + \pi r l$

12-5

Volumes of Pyramids and Cones

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

11. a cone with its height as three times the radius

$\pi r^3$

12. the cone in Exercise #10

5.43 units<sup>3</sup>

\* Volume of Pyramids  
 $V = \frac{1}{3}Bh$   
 Volume (Cone)  
 $V = \frac{1}{3}\pi r^2 h$

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12-6

## Spheres

Complete the sentence.

13. The set of all points a given distance from the center is a

sphere.

A beach ball will have a diameter of 30 in.

14. How much material will be used to make the beach ball?

2827.43 in<sup>2</sup>

15. How much air will be needed to fill it?

14137.17 in<sup>3</sup>

\* Surface Area (sphere)

$$S = 4\pi r^2$$

$$\text{Volume (sphere)}$$

$$V = \frac{4}{3}\pi r^3$$

12-7

## Similarity of Solid Figures

16. Solids having the same shape but not always the same size

are similar.

If the radius of a sphere is doubled:

17. How does the surface area change?

Quadrupled

18. How does the volume change?

8 times

The diameter of the moon is about 2160 miles. The diameter of the Earth is about 7900 miles.

19. Assuming both are spheres, what is the scale factor of the Earth to the moon?

Earth: moon  $\approx$  3.66:1

20. Are they similar solid figures?

yes



Visit [geomconcepts.com](http://geomconcepts.com) to access your textbook, more examples, self-check quizzes, and practice tests to help you study the concepts in Chapter 12.

## ARE YOU READY FOR THE CHAPTER TEST?

Check the one that applies. Suggestions to help you study are given with each item.

I completed the review of all or most lessons without using my notes or asking for help.

- You are probably ready for the Chapter Test.
- You may want to take the Chapter 12 Practice Test on page 543 of your textbook as a final check.

I used my Foldable or Study Notebook to complete the review of all or most lessons.

- You should complete the Chapter 12 Study Guide and Review on pages 540–542 of your textbook.
- If you are unsure of any concepts or skills, refer back to the specific lesson(s).
- You may also want to take the Chapter 12 Practice Test on page 543.

I asked for help from someone else to complete the review of all or most lessons.

- You should review the examples and concepts in your Study Notebook and Chapter 12 Foldable.
- Then complete the Chapter 12 Study Guide and Review on pages 540–542 of your textbook.
- If you are unsure of any concepts or skills, refer back to the specific lesson(s).
- You may also want to take the Chapter 12 Practice Test on page 543.

Student Signature

Parent/Guardian Signature

Teacher Signature