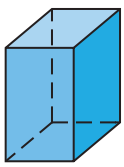
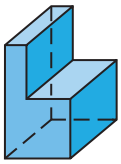
CHAPTER 12

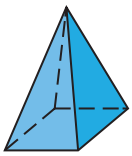
# Chapter Standardized Test

**TEST-TAKING STRATEGY** It is important to remember that your SAT score will not solely determine your acceptance into a college or university. Do not put added pressure on yourself to do well. If you are not satisfied with your SAT score, remember that you can take it again.

**1. MULTIPLE CHOICE** Which of the figures shown below are *not* convex?

I. 

II. 

III. 

(A) I only (B) II only (C) III only

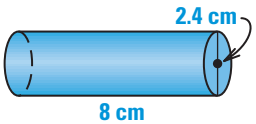
(D) I and III (E) I, II, and III

**2. MULTIPLE CHOICE** A right rectangular prism has a width of 6.8 meters and a length of 28 meters. If the surface area of the prism is 2608 square meters, what is its height?

(A) 20 m (B) 22.5 m (C) 24.8 m

(D) 30 m (E) 32 m

**3. MULTIPLE CHOICE** What is the lateral area of the right cylinder below?




(A) $2.4\pi$ cm$^2$ (B) $9.6\pi$ cm$^2$ (C) $11.5\pi$ cm$^2$

(D) $19.2\pi$ cm$^2$ (E) $38.4\pi$ cm$^2$

**4. MULTIPLE CHOICE** The right triangular prism below has a volume of 1650 cubic meters. What is the value of $x$?

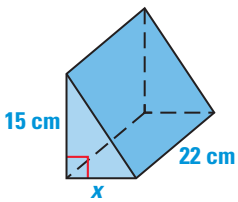
(A) 8 m

(B) 8.5 m

(C) 10 m

(D) 12 m

(E) 12.5 m




**5. MULTIPLE CHOICE** What is the radius of a sphere whose volume is $972\pi$ cubic yards?

(A) 6 yd (B) 9 yd (C) 12 yd

(D) 14 yd (E) 18 yd

**6. MULTIPLE CHOICE** What is the volume of the solid shown below?

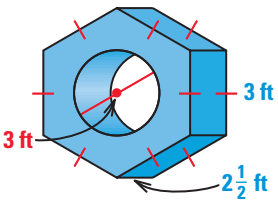
(A) 34.75 ft$^3$

(B) 36 ft$^3$

(C) 38.58 ft$^3$

(D) 40.79 ft$^3$

(E) 42.22 ft$^3$




**7. MULTIPLE CHOICE** What is the ratio of the volumes of the right cones shown below?

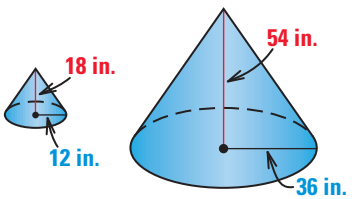
(A) 2:5

(B) 1:3

(C) 3:20

(D) 1:9

(E) 1:27



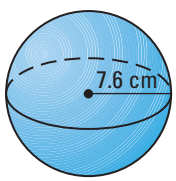
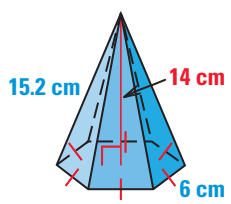

**QUANTITATIVE COMPARISON Use the two solids shown to choose the statement that is true about the quantities.**

(A) The quantity in column A is greater.

(B) The quantity in column B is greater.

(C) The two quantities are equal.

(D) The relationship cannot be determined from the given information.

| | Column A | Column B |
|---|---|---|
| |   |   |
| 8. | Circumference of a great circle of the sphere | Perimeter of a lateral face of the pyramid |
| 9. | Surface area of the sphere | Surface area of the pyramid |

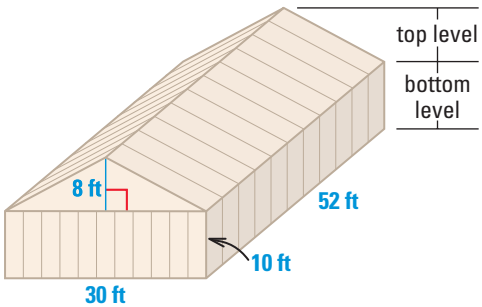
**10. MULTIPLE CHOICE** The side lengths of a cube are doubled. How many times larger is the surface area of the new cube?

Ⓐ 2 times Ⓑ 3 times Ⓒ 4 times Ⓓ 8 times Ⓔ 16 times

**11. MULTIPLE CHOICE** The scale factor of two cylinders is 1:4. The radius of a base of the smaller cylinder is 4 feet and its height is 5 feet. What is the volume of the larger cylinder?

Ⓐ $320\pi$ ft$^3$ Ⓑ $1280\pi$ ft$^3$ Ⓒ $2560\pi$ ft$^3$ Ⓓ $5120\pi$ ft$^3$ Ⓔ $6480\pi$ ft$^3$

**MULTI-STEP PROBLEM Use the diagram of the storage building shown.**




**12.** You decide to cover the roof with 8 foot by 4 foot plywood sheets. Estimate the number of sheets of plywood you need. Explain how you calculated your answer.

**13.** Find the volume of the entire storage building.

**14.** What is the surface area of the top level of the building? Include the floor separating the top level from the bottom level.

**MULTI-STEP PROBLEM Terry plans to use 12 sliced peaches for a peach cobbler. The cylindrical soufflé dish she will bake it in has a diameter of 18 centimeters and a height of 9 centimeters.**

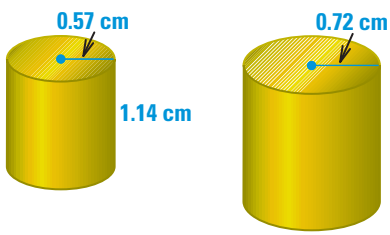
**15.** What is the volume of Terry's soufflé dish?

**16.** The 12 sliced peaches fill a bowl with a diameter of 20 centimeters. Given that the bowl is a hemisphere, how can you determine whether the peaches will fit in the soufflé dish?

**17.** How many peaches should she use to make two single servings in custard cups that have diameters of 7 centimeters and heights of 3.5 centimeters?

**18.** *Writing* Mark says that to reduce the volume of a dessert by half, a baking dish with dimensions that are half the dimensions of the original dish must be used. Is Mark correct? Explain.

**MULTI-STEP PROBLEM Use the similar cylindrical weights shown.**




**19.** What is the scale factor of the smaller cylinder to the larger cylinder?

**20.** What is the height of the larger cylindrical weight?

**21.** Find the surface area of the smaller cylinder. Use the scale factor from Exercise 19 to find the surface area of the larger cylinder.

**22.** Find the volume of the smaller cylinder. Use the scale factor from Exercise 19 to find the volume of the larger cylinder.

**23.** A third cylindrical weight is larger than the two shown. This third weight is similar to the larger weight with a scale factor of 1:3. Use your results from Exercises 21 and 22 to find the surface area and volume of the third weight.