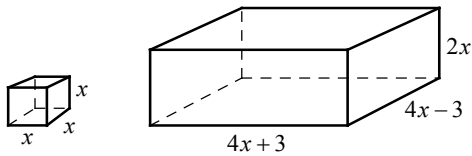


## Chapter 20 Practice Test

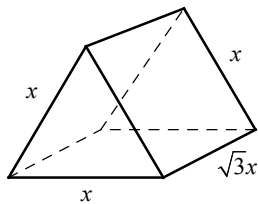
1



The figure above shows a cube and a rectangular prism. If the volume of the rectangular prism is 30 times the volume of the cube, what is the value of  $x$ ?

- A) 1.5
- B) 2
- C) 2.5
- D) 3

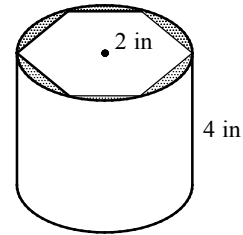
2



The figure above shows a triangular prism whose base is an equilateral triangle with side lengths  $x$  and height  $\sqrt{3}x$ . If the volume of the prism is  $\frac{81}{4}$ , what is the value of  $x$ ?

- A) 3
- B) 4
- C) 5
- D) 6

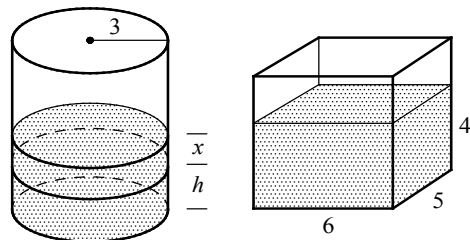
3



A regular hexagonal prism with edge lengths of 2 inches is created by cutting out a metal cylinder whose radius is 2 inches and height is 4 inches. What is the volume of the waste generated by creating the hexagonal prism from the cylinder, rounded to the nearest cubic inch?

- A) 7
- B) 9
- C) 11
- D) 14

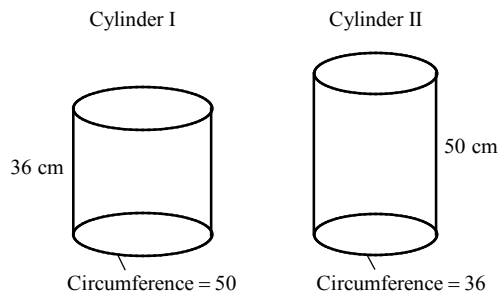
4



In the figure shown above, if all the water in the rectangular container is poured into the cylinder, the water level rises from  $h$  inches to  $(h + x)$  inches. Which of the following is the best approximation of the value of  $x$ ?

- A) 3
- B) 3.4
- C) 3.8
- D) 4.2

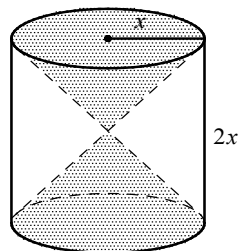
5



The figure above shows two cylinders that are rolled up from a poster 36 centimeter (cm) wide and 50 cm long without overlap. For cylinder I, the height is 36 cm and the circumference of the base is 50 cm. For cylinder II, the height is 50 cm and the circumference of the base is 36 cm. Which of the following is closest to the difference of volume between the two cylinders, in cubic centimeters?

- A) 1,600
- B) 1,800
- C) 2,000
- D) 2,200

6



In the figure above, a double cone is inscribed in a cylinder whose radius is  $x$  and height is  $2x$ . What is the volume of the space inside the cylinder but outside the double cone, in terms of  $x$ ?

- A)  $\frac{1}{2}\pi x^3$
- B)  $\frac{2}{3}\pi x^3$
- C)  $\frac{4}{3}\pi x^3$
- D)  $\frac{3}{2}\pi x^3$

7

The surface area of a cube is 54 square centimeters ( $\text{cm}^2$ ). What is the volume of the cube in cubic centimeters?

8

A cone with a height of 10 cm and radius of 3 cm is 90 percent filled with shaved ice. What is the volume of the shaved ice, to the nearest cubic centimeter?

9

A square pyramid and a cube have equal volumes. The cube has an edge length of 4 inches and the pyramid has a base side length of 6 inches. What is the height of the pyramid in inches?