

**Math Drill**

*Time yourself from start to finish and record your time below. The SAT Non-Calculator section is all about speed and practice makes perfect!*

YOUR TIME: \_\_\_\_\_

<b>Multiply and Divide (C)</b>
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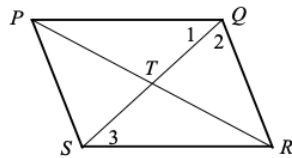
Find each product or quotient.

$\begin{array}{r} 18 \\ \div 18 \end{array}$	$\begin{array}{r} 1 \\ \times 7 \end{array}$	$\begin{array}{r} 66 \\ \div 11 \end{array}$	$\begin{array}{r} 16 \\ \div 8 \end{array}$	$\begin{array}{r} 16 \\ \div 8 \end{array}$	$\begin{array}{r} 9 \\ \times 16 \end{array}$	$\begin{array}{r} 2 \\ \times 3 \end{array}$	$\begin{array}{r} 6 \\ \times 20 \end{array}$	$\begin{array}{r} 9 \\ \div 9 \end{array}$	$\begin{array}{r} 154 \\ \div 14 \end{array}$
$\begin{array}{r} 6 \\ \times 19 \end{array}$	$\begin{array}{r} 5 \\ \times 3 \end{array}$	$\begin{array}{r} 7 \\ \times 13 \end{array}$	$\begin{array}{r} 95 \\ \div 19 \end{array}$	$\begin{array}{r} 20 \\ \times 12 \end{array}$	$\begin{array}{r} 49 \\ \div 7 \end{array}$	$\begin{array}{r} 208 \\ \div 16 \end{array}$	$\begin{array}{r} 9 \\ \times 9 \end{array}$	$\begin{array}{r} 120 \\ \div 12 \end{array}$	$\begin{array}{r} 19 \\ \times 16 \end{array}$
$\begin{array}{r} 7 \\ \times 1 \end{array}$	$\begin{array}{r} 8 \\ \times 17 \end{array}$	$\begin{array}{r} 160 \\ \div 8 \end{array}$	$\begin{array}{r} 1 \\ \times 12 \end{array}$	$\begin{array}{r} 2 \\ \times 8 \end{array}$	$\begin{array}{r} 304 \\ \div 16 \end{array}$	$\begin{array}{r} 96 \\ \div 16 \end{array}$	$\begin{array}{r} 1 \\ \div 1 \end{array}$	$\begin{array}{r} 2 \\ \times 10 \end{array}$	$\begin{array}{r} 156 \\ \div 12 \end{array}$
$\begin{array}{r} 140 \\ \div 7 \end{array}$	$\begin{array}{r} 144 \\ \div 18 \end{array}$	$\begin{array}{r} 60 \\ \div 6 \end{array}$	$\begin{array}{r} 6 \\ \times 20 \end{array}$	$\begin{array}{r} 4 \\ \div 1 \end{array}$	$\begin{array}{r} 8 \\ \times 6 \end{array}$	$\begin{array}{r} 220 \\ \div 11 \end{array}$	$\begin{array}{r} 16 \\ \div 2 \end{array}$	$\begin{array}{r} 168 \\ \div 14 \end{array}$	$\begin{array}{r} 14 \\ \times 9 \end{array}$
$\begin{array}{r} 14 \\ \times 18 \end{array}$	$\begin{array}{r} 13 \\ \times 18 \end{array}$	$\begin{array}{r} 6 \\ \div 2 \end{array}$	$\begin{array}{r} 56 \\ \div 7 \end{array}$	$\begin{array}{r} 196 \\ \div 14 \end{array}$	$\begin{array}{r} 75 \\ \div 15 \end{array}$	$\begin{array}{r} 7 \\ \times 15 \end{array}$	$\begin{array}{r} 20 \\ \div 2 \end{array}$	$\begin{array}{r} 13 \\ \times 15 \end{array}$	$\begin{array}{r} 14 \\ \times 7 \end{array}$
$\begin{array}{r} 8 \\ \times 2 \end{array}$	$\begin{array}{r} 340 \\ \div 20 \end{array}$	$\begin{array}{r} 17 \\ \div 17 \end{array}$	$\begin{array}{r} 7 \\ \times 20 \end{array}$	$\begin{array}{r} 5 \\ \div 1 \end{array}$	$\begin{array}{r} 56 \\ \div 4 \end{array}$	$\begin{array}{r} 15 \\ \div 5 \end{array}$	$\begin{array}{r} 27 \\ \div 9 \end{array}$	$\begin{array}{r} 5 \\ \div 5 \end{array}$	$\begin{array}{r} 17 \\ \div 17 \end{array}$
$\begin{array}{r} 5 \\ \times 8 \end{array}$	$\begin{array}{r} 4 \\ \times 18 \end{array}$	$\begin{array}{r} 16 \\ \times 7 \end{array}$	$\begin{array}{r} 5 \\ \times 15 \end{array}$	$\begin{array}{r} 66 \\ \div 6 \end{array}$	$\begin{array}{r} 42 \\ \div 6 \end{array}$	$\begin{array}{r} 16 \\ \div 4 \end{array}$	$\begin{array}{r} 99 \\ \div 9 \end{array}$	$\begin{array}{r} 180 \\ \div 20 \end{array}$	$\begin{array}{r} 57 \\ \div 3 \end{array}$
$\begin{array}{r} 112 \\ \div 14 \end{array}$	$\begin{array}{r} 60 \\ \div 12 \end{array}$	$\begin{array}{r} 156 \\ \div 12 \end{array}$	$\begin{array}{r} 15 \\ \times 19 \end{array}$	$\begin{array}{r} 8 \\ \div 4 \end{array}$	$\begin{array}{r} 17 \\ \times 13 \end{array}$	$\begin{array}{r} 3 \\ \times 6 \end{array}$	$\begin{array}{r} 3 \\ \times 20 \end{array}$	$\begin{array}{r} 19 \\ \times 16 \end{array}$	$\begin{array}{r} 18 \\ \times 18 \end{array}$
$\begin{array}{r} 1 \\ \times 9 \end{array}$	$\begin{array}{r} 17 \\ \times 19 \end{array}$	$\begin{array}{r} 15 \\ \times 3 \end{array}$	$\begin{array}{r} 5 \\ \times 7 \end{array}$	$\begin{array}{r} 18 \\ \times 2 \end{array}$	$\begin{array}{r} 14 \\ \times 16 \end{array}$	$\begin{array}{r} 95 \\ \div 19 \end{array}$	$\begin{array}{r} 19 \\ \times 14 \end{array}$	$\begin{array}{r} 3 \\ \times 16 \end{array}$	$\begin{array}{r} 3 \\ \div 3 \end{array}$
$\begin{array}{r} 39 \\ \div 3 \end{array}$	$\begin{array}{r} 208 \\ \div 16 \end{array}$	$\begin{array}{r} 224 \\ \div 16 \end{array}$	$\begin{array}{r} 8 \\ \times 18 \end{array}$	$\begin{array}{r} 7 \\ \times 2 \end{array}$	$\begin{array}{r} 150 \\ \div 15 \end{array}$	$\begin{array}{r} 168 \\ \div 14 \end{array}$	$\begin{array}{r} 12 \\ \times 12 \end{array}$	$\begin{array}{r} 5 \\ \times 2 \end{array}$	$\begin{array}{r} 195 \\ \div 15 \end{array}$

## Unit 18 - Polygons and Quadrilaterals

Topic: Parallelograms

Questions 1-5 refer to the following information.



In  $\square PQRS$  above,  $PT = x + 2y$ ,  $ST = 8x - y$ ,  $PR = 32$ ,  $TQ = 26$ ,  $m\angle 1 = 6a$ ,  $m\angle 2 = 10a$ ,  $m\angle 3 = a^2 - 7$  and  $m\angle PRS = 4a$ .

1

What is the value of  $x$ ?

2

What is the value of  $y$ ?

3

What is the measure of  $\angle PQR$ ?

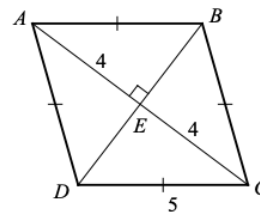
4

What is the measure of  $\angle QRS$ ?

5

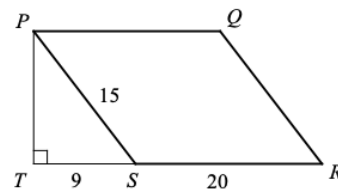
What is the measure of  $\angle QTR$ ?

6



What is the area of rhombus  $ABCD$  above?

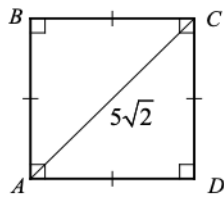
7



In the figure above,  $PQRS$  is a parallelogram and  $PTS$  is a right triangle. What is the area of the parallelogram  $PQRS$ ?

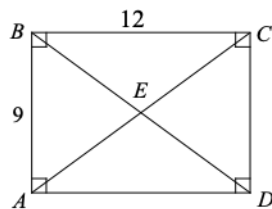
## Topic: Rectangles, Squares, and Trapezoids

1



In square  $ABCD$  above, the length of diagonal  $AC$  is  $5\sqrt{2}$ . What is the area of the square?

Questions 2 and 3 refer to the following information.



In the figure above,  $ABCD$  is a rectangle.

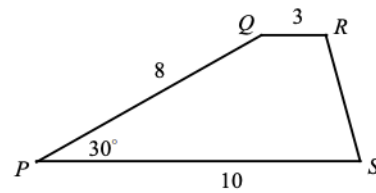
2

What is the length of  $AE$ ?

3

What is the area of  $\triangle CED$ ?

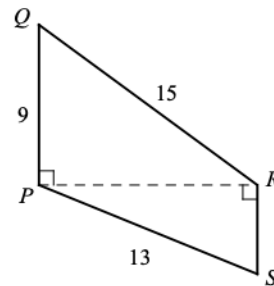
4



What is the area of trapezoid  $PQRS$  above?

- A) 20
- B) 24
- C) 26
- D) 32

5

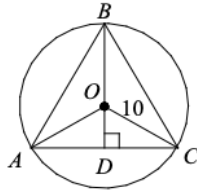


What is the area of trapezoid  $PQRS$  above?

- A) 64
- B) 72
- C) 76
- D) 84

## Topic: Regular Polygons

Questions 1 - 4 refer to the following information.



The figure above is an equilateral inscribed in a circle with radius 10.

1

What is the measure of  $\angle AOC$ ?

2

What is the length of  $OD$ ?

3

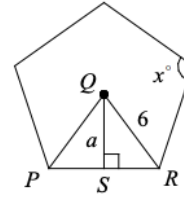
What is the length of  $BD$ ?

4

What is the area of  $\triangle ABC$ ?

- A)  $45\sqrt{3}$
- B)  $50\sqrt{3}$
- C)  $60\sqrt{3}$
- D)  $75\sqrt{3}$

Questions 5 - 7 refer to the following information.



The figure above is a regular pentagon whose radius is 6.

5

What is the value of  $x$ ?

6

What is the measure of  $\angle RQS$ ?

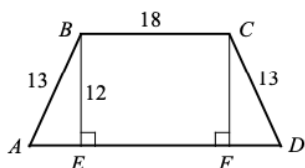
7

Which of the following equations can be used to find the value of  $a$ ?

- A)  $\sin \angle RQS = \frac{a}{6}$
- B)  $\cos \angle RQS = \frac{a}{6}$
- C)  $\sin \angle RQS = \frac{6}{a}$
- D)  $\cos \angle RQS = \frac{6}{a}$

## Unit 18 Review Questions

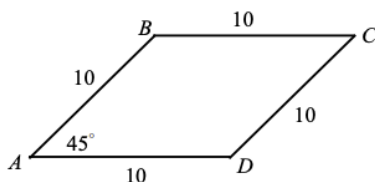
1



What is the area of the isosceles trapezoid above?

- A) 238
- B) 252
- C) 276
- D) 308

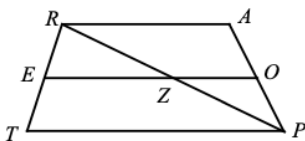
2



What is the area of rhombus  $ABCD$  above?

- A)  $20\sqrt{2}$
- B)  $25\sqrt{2}$
- C)  $50\sqrt{2}$
- D)  $100\sqrt{2}$

3

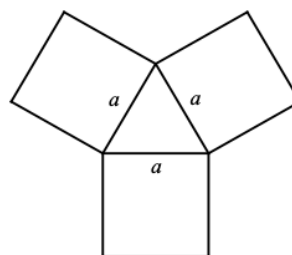


In the figure above,  $\overline{EO}$  is the midsegment of trapezoid  $TRAP$  and  $\overline{RP}$  intersect  $\overline{EO}$  at point  $Z$ . If  $RA = 15$  and  $EO = 18$ , what is the length of  $\overline{EZ}$ ?

4

A rectangle has a length that is 6 meters more than twice its width. What is the perimeter of the rectangle if the area of the rectangle is 1,620 square meters?

5



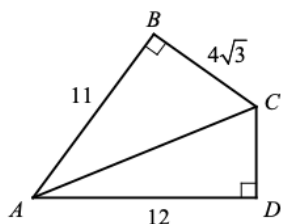
The figure above shows an equilateral triangle with sides of length  $a$  and three squares with sides of length  $a$ . If the area of the equilateral triangle is  $25\sqrt{3}$ , what is the sum of the areas of the three squares?

- A) 210
- B) 240
- C) 270
- D) 300

6

The perimeter of a rectangle is  $5x$  and its length is  $\frac{3}{2}x$ . If the area of the rectangle is 294, what is the value of  $x$ ?

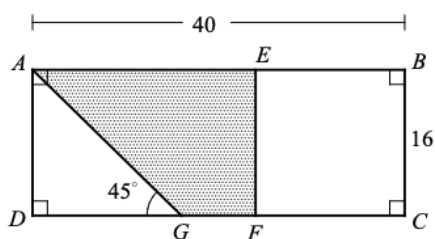
7



In the figure above, what is the area of the region  $ABCD$ ?

- A)  $22\sqrt{3} + 30$
- B)  $22\sqrt{3} + 36$
- C)  $22\sqrt{3} + 42$
- D)  $22\sqrt{3} + 48$

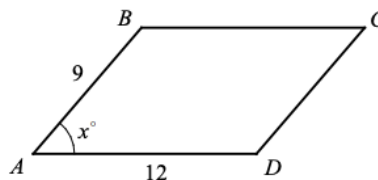
8



In the figure above,  $ABCD$  is a rectangle and  $BCFE$  is a square. If  $AB = 40$ ,  $BC = 16$ , and  $m\angle AGD = 45^\circ$ , what is the area of the shaded region?

- A) 240
- B) 248
- C) 256
- D) 264

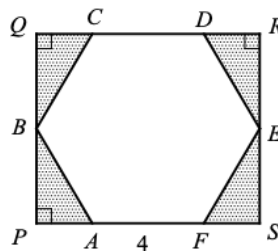
9



The figure above shows parallelogram  $ABCD$ . Which of the following equations represents the area of parallelogram  $ABCD$ ?

- A)  $12 \cos x^\circ \times 9 \sin x^\circ$
- B)  $12 \times 9 \tan x^\circ$
- C)  $12 \times 9 \cos x^\circ$
- D)  $12 \times 9 \sin x^\circ$

10



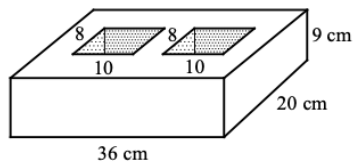
In the figure above,  $ABCDEF$  is a regular hexagon with side lengths of 4.  $PQRS$  is a rectangle. What is the area of the shaded region?

- A)  $8\sqrt{3}$
- B)  $9\sqrt{3}$
- C)  $10\sqrt{3}$
- D)  $12\sqrt{3}$

## Unit 20 - Surface Areas and Volumes

## Topic: Prisms

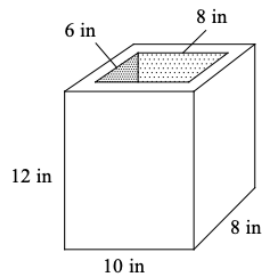
1



The figure above shows a cement block of  $36\text{ cm} \times 20\text{ cm} \times 9\text{ cm}$  with two  $10\text{ cm} \times 8\text{ cm}$  openings. What is the weight of the cement block to the nearest gram? (The density of cement is  $1.7\text{ gram} / \text{cm}^3$ )

- A) 5,040
- B) 6,048
- C) 7,560
- D) 8,568

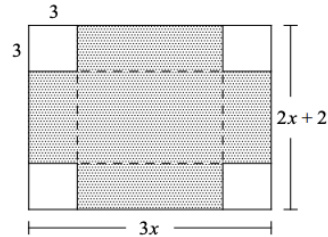
2



The figure above shows an aluminum block of  $10\text{ in} \times 8\text{ in} \times 12\text{ in}$  with an  $8\text{ in} \times 6\text{ in} \times 12\text{ in}$  opening. What is the weight of the aluminum block to the nearest pound? (The density of aluminum is  $0.098\text{ lb/in}^3$ )

- A) 32
- B) 38
- C) 42
- D) 48

3



A manufacturing company produces cardboard boxes by cutting out square corners 3 inches (in) by 3 in. from rectangular pieces of cardboard  $3x\text{ in.}$  by  $2x+2\text{ in.}$  The cardboard is then folded along the dashed lines to form a box without a top. If the volume of the box is  $162\text{ in}^3$ , what is the dimension of the original cardboard before cutting out its square corners?

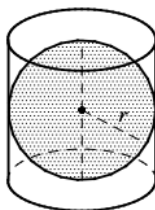
- A)  $12\text{ in} \times 9\text{ in}$
- B)  $14\text{ in} \times 10\text{ in}$
- C)  $15\text{ in} \times 12\text{ in}$
- D)  $16\text{ in} \times 14\text{ in}$

4

An aquarium tank in the shape of a rectangular prism is 20 inches (in) long by 16 in wide by 12 in high. If 2,400 cubic inches of water is added into the empty tank, how far is the surface of the water from the top of the tank?

## Topic: Cylinders and Spheres

1

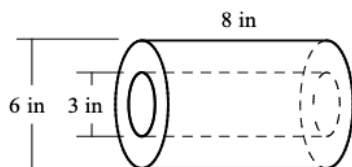


In the figure above, a sphere is inscribed in a cylinder, so that the diameter of the sphere is the same as the diameter of the cylinder and the height of the cylinder. What is the value

of  $\frac{\text{Volume of the sphere}}{\text{Volume of the cylinder}}$ ?

- A)  $\frac{1}{2}$
- B)  $\frac{2}{3}$
- C)  $\frac{7}{10}$
- D)  $\frac{3}{4}$

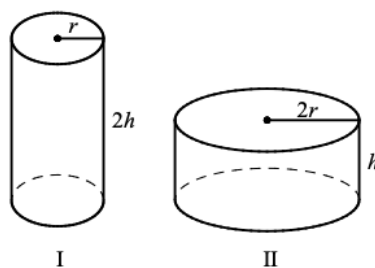
2



The figure above shows the mechanical part in the shape of a steel cylinder 8 inches high and 6 inches long in diameter. A hole with a diameter of 3 inches is drilled through the mechanical part. The density of steel is  $490 \text{ lb/ft}^3$ . What is the mass of the mechanical part, to the nearest pound? (1 foot = 12 inch)

- A) 36
- B) 42
- C) 48
- D) 52

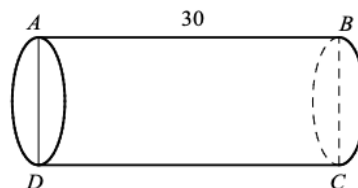
3



The figure above shows two cylinders. The height of cylinder I is twice the height of cylinder II and the radius of cylinder II is twice the radius of cylinder I. If the volume of cylinder I is  $45\pi \text{ in}^3$ , what is the volume of cylinder II in cubic inches?

- A)  $22.5\pi$
- B)  $45\pi$
- C)  $67.5\pi$
- D)  $90\pi$

4



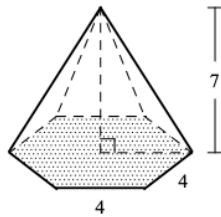
In the cylindrical tube shown above, the height of the tube is 30 and the circumference of the circular base is 32. If the tube is cut along  $\overline{AB}$  and laid out flat to make a rectangle, what is the length of  $\overline{AC}$  to the nearest whole number?

- A) 24
- B) 30
- C) 34
- D) 38



## Topic: Pyramids and Cones

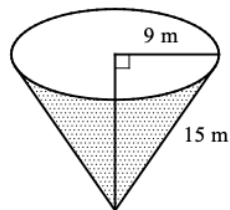
1



The figure above shows a pyramid with regular hexagonal base. The length of each side of the hexagonal face is 4 units and the height of the pyramid is 7 units. What is the volume of the pyramid?

- A)  $35\sqrt{3}$
- B)  $56\sqrt{3}$
- C)  $84\sqrt{3}$
- D)  $168\sqrt{3}$

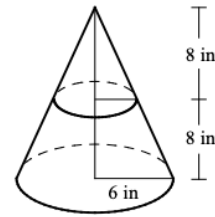
2



Water is pouring into a conical reservoir at the rate of  $2.4 \text{ m}^3$  per minute. If the radius of the base of the conical reservoir is 9 meters (m) and the length of the lateral edge is 15 m, to the nearest minute, how long will it take to fill up the empty reservoir?

- A) 212
- B) 318
- C) 424
- D) 530

3



A plane parallel to the base of a cone divides the cone into two pieces, and removes the top part. The radius of the cone is 6 inches (in), the height of the cone is 16 in, and the distance from the base to the parallel plane is 8 in. What is the volume of the remaining bottom part, in cubic inches?

- A)  $56\pi$
- B)  $84\pi$
- C)  $126\pi$
- D)  $168\pi$

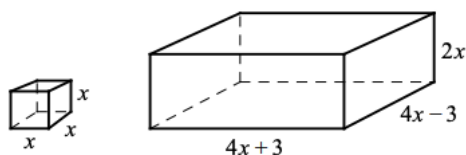
4

If the circumference of the base part of cone is 10 centimeters (cm) and the height of the cone is 8 cm, what is the volume of the cone, to the nearest cubic centimeter?

- A) 18
- B) 21
- C) 24
- D) 32

## Unit 20 Review Questions

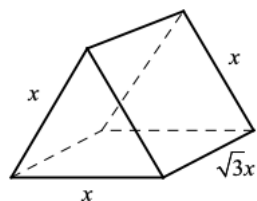
1



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

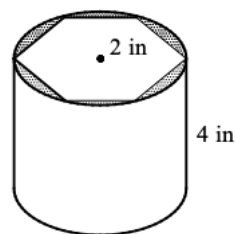
2



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

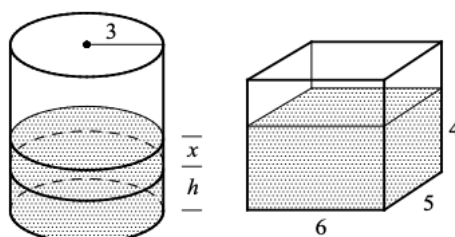
3



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

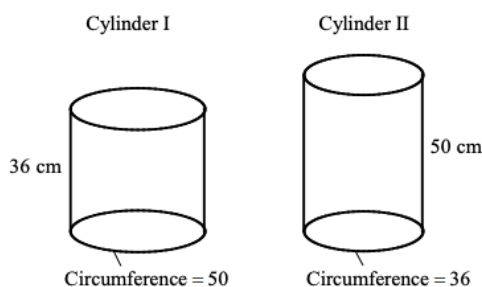
4



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

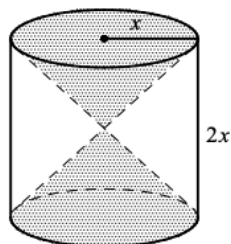
5



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?