Key

8.11 Applications/Practice

1. The table shows the approximate measurements of the Great Pyramid of Giza in Egypt and the Pyramid of Kukulcan in Mexico.

Pyramid	Height (meters)	Area of Base (square meters)
Great Pyramid of Giza	147	52,900
Pyramid of Kukulcan	30	3,025

Approximately what is the difference between the volume of the Great Pyramid of Giza and the volume of the Pyramid of Kukulcan?

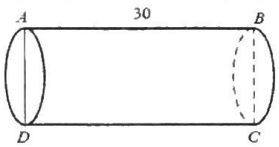
A. 1,945,000 cubic meters
B. 2,562,000 cubic meters
C. 5,835,000 cubic meters
D. 7,686,000 cubic meters

$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(52900)(147)$

$V = \frac{1}{3}(3025)(30)$

2.



In the cylindrical tube shown above, the height of the tube is 30 & the circumference of the circular base is 32. What is the volume of the cylinder?

A) 960π
B) 7680
C) 2441.78
D) 479.72

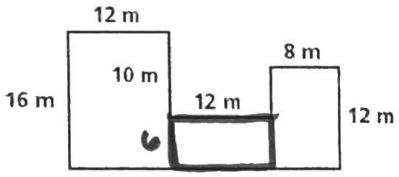
$C = 2\pi r$

$\frac{32}{(2\pi)} = \frac{2\pi r}{(2\pi)}$

$r = 5.09$

$V = \pi(5.09^2)(30) =$

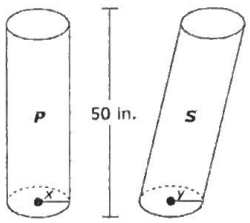
3. Assume all angles are right angles. What is the area of the figure?



a. 1536 square meters
b. 408 square meters
c. 360 square meters
d 102 square meters

$192 + 72 + 96 =$

4. Two cylinders each with a height of 50 inches are shown.



Which statements about cylinders P and S are true?

Select **all** that apply.

A. If $x = y$, the volume of cylinder P is greater than the volume of cylinder S, because cylinder P is a right cylinder.
B. If $x = y$, the volume of cylinder P is equal to the volume of cylinder S, because the cylinders are the same height.
C. If $x = y$, the volume of cylinder P is less than the volume of cylinder S, because cylinder S is slanted.
D. If $x < y$, the area of a horizontal cross section of cylinder P is greater than the area of a horizontal cross section of cylinder S.
E. If $x < y$, the area of a horizontal cross section of cylinder P is equal to the area of a horizontal cross section of cylinder S.
F. If $x < y$, the area of a horizontal cross section of cylinder P is less than the area of a horizontal cross section of cylinder S.

5. Find the volume of the prism below:

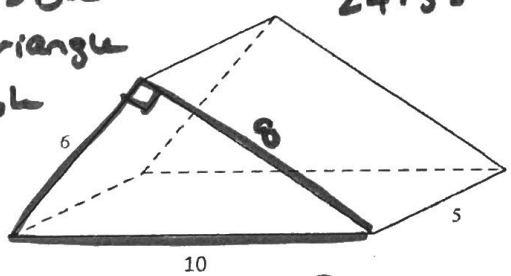
$V = Bh$

B = triangle

$B = \frac{1}{2}bh$

$B = 24$

$24 \cdot 5 =$



A) 300 $units^3$
B) 150 $units^3$
C) 120 $units^3$
D) 200 $units^3$

6. 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

$C = 2\pi r$

$\frac{10}{(2\pi)} = \frac{2\pi r}{(2\pi)}$

$r = 1.59$

$V = \frac{1}{3}\pi r^2(h)$

$V = \frac{1}{3}\pi(1.59^2)(8)$

8.11 Applications/Practice

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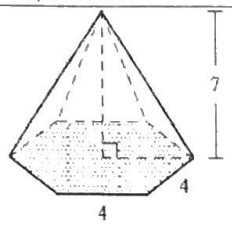

The figure above shows a pyramid with regular hexagonal base. The length of each side of the hexagonal face is 4 units and the height of the pyramid is 7 units. What is the volume of the pyramid?

A) $35\sqrt{3}$

B) $56\sqrt{3}$

C) $84\sqrt{3}$

D) $168\sqrt{3}$

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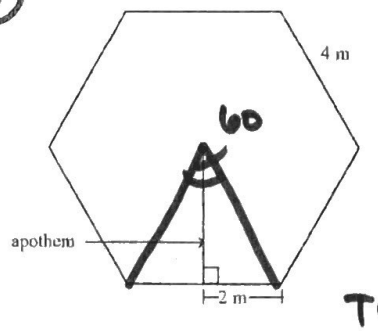
Find the area of a regular hexagon with side length 4 m.



a. 83.1 m^2

b. 24 m^2

c. 41.6 m^2

d. 20 8 m^2

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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?

5.33

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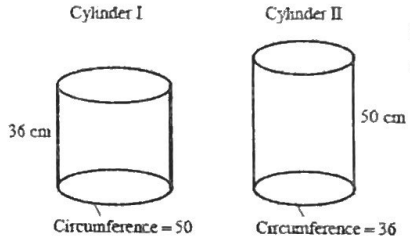

The figure above shows two cylinders that are rolled up from a poster 36 centimeter (cm) wide and 50 cm long without overlap. For cylinder I, the height is 36 cm and the circumference of the base is 50 cm. For cylinder II, the height is 50 cm and the circumference of the base is 36 cm. Which of the following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

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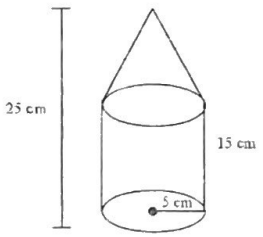
Find the volume of the figure below. Round to the nearest square centimeter.



a. 576 cm^3 b. 785 cm^3 c. 1440 cm^3 d. 1963 cm^3

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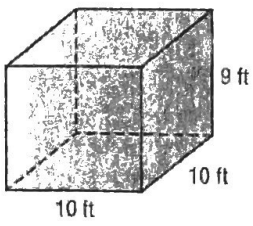
Rebecca is loading medical supply boxes into a crate. Each supply box is 1.5 feet tall, 1 foot wide, and 2 feet deep. The crate is 9 feet high, 10 feet wide, and 10 feet deep.



What is the maximum number of supply boxes can she pack in this crate?

a. 200 b. 300 c. 450 d. 600