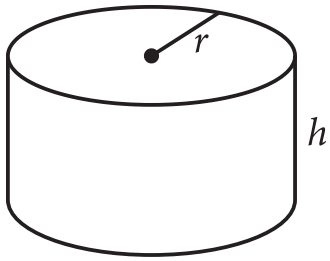


A cube has an edge length of ~~6~~**8** inches. A solid sphere with a radius of ~~3~~**4** inches is inside the cube, such that the sphere touches the center of each face of the cube. To the nearest cubic inch, what is the volume of the space in the cube not taken up by the sphere?

- A. ~~14~~**9,796**
- B. ~~16~~**4,500**
- C. ~~19~~**0,955**
- D. ~~31~~**0,800**



The figure shown is a right circular cylinder with a radius of r and height of h . A second right circular cylinder (not shown) has a volume that is **392** times as large as the volume of the cylinder shown. Which of the following could represent the radius R , in terms of r , and the height H , in terms of h , of the second cylinder?

- A. $R = 8r$ and $H = 7h$
- B. $R = 8r$ and $H = 49h$
- C. $R = 7r$ and $H = 8h$
- D. $R = 49r$ and $H = 8h$

A right circular cone has a height of **22 centimeters (cm)** and a base with a diameter of **6 cm**. The volume of this cone is $n\pi \text{ cm}^3$. What is the value of n ?

A manufacturer determined that right cylindrical containers with a height that is 4 inches longer than the radius offer the optimal number of containers to be displayed on a shelf. Which of the following expresses the volume, V , in cubic inches, of such containers, where r is the radius, in inches?

A. $V = 4\pi r^3$

B. $V = \pi(2r)^3$

C. $V = \pi r^2 + 4\pi r$

D. $V = \pi r^3 + 4\pi r^2$

A rectangular poster has an area of **360** square inches. A copy of the poster is made in which the length and width of the original poster are each increased by **20%**. What is the area of the copy, in square inches?

A right rectangular prism has a length of **28 centimeters (cm)**, a width of **15 cm**, and a height of **16 cm**. What is the surface area, **in cm²**, of the right rectangular prism?

A right circular cone has a volume of $\frac{1}{3}\pi$ cubic feet and a height of 9 feet. What is the radius, in feet, of the base of the cone?

A. $\frac{1}{3}$

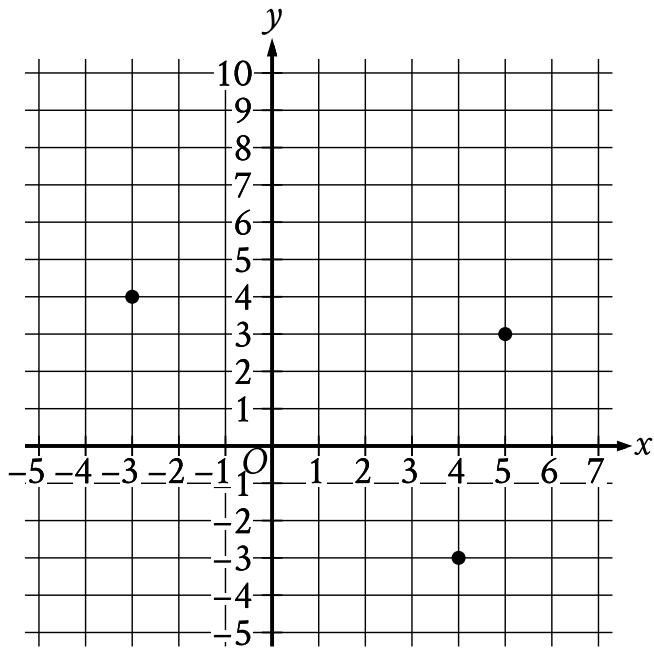
B. $\frac{1}{\sqrt{3}}$

C. $\sqrt{3}$

D. 3

The volume of right circular cylinder A is 22 cubic centimeters. What is the volume, in cubic centimeters, of a right circular cylinder with twice the radius and half the height of cylinder A?

- A. 11
- B. 22
- C. 44
- D. 66



What is the area, in square units, of the triangle formed by connecting the three points shown?

Circle A has a radius of $3n$ and circle B has a radius of $129n$, where n is a positive constant. The area of circle B is how many times the area of circle A ?

- A. 43
- B. 86
- C. 129
- D. 1,849

The dimensions of a right rectangular prism are 4 inches by 5 inches by 6 inches.
What is the surface area, in square inches, of the prism?

- A. 30
- B. 74
- C. 120
- D. 148

A right triangle has sides of length $2\sqrt{2}$, $6\sqrt{2}$, and $\sqrt{80}$ units. What is the area of the triangle, in square units?

A. $8\sqrt{2} + \sqrt{80}$

B. 12

C. $24\sqrt{80}$

D. 24

Triangles ABC and DEF are similar. Each side length of triangle ABC is 4 times the corresponding side length of triangle DEF . The area of triangle ABC is 270 square inches. What is the area, in square inches, of triangle DEF ?

A cube has a surface area of 54 square meters. What is the volume, in cubic meters, of the cube?

- A. 18
- B. 27
- C. 36
- D. 81