

#1

ID: e5c57163

Square A has side lengths that are 166 times the side lengths of square B. The area of square A is k times the area of square B. What is the value of k ?

#2

ID: 983412ea

A right square prism has a height of 14 units. The volume of the prism is 2,016 cubic units. What is the length, in units, of an edge of the base?

#3

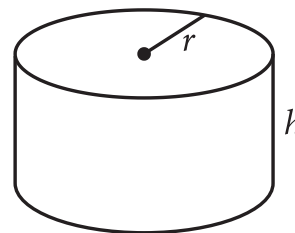
ID: 9966235e

A cube has an edge length of 68 inches. A solid sphere with a radius of 34 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) 149,796
- B) 164,500
- C) 190,955
- D) 310,800

#4

ID: a07ed090



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 $H = 8h$

#5

ID: 167aff9e

Right rectangular prism X is similar to right rectangular prism Y. The surface area of right rectangular prism X is 58 square centimeters (cm^2), and the surface area of right rectangular prism Y is 1,450 cm^2 . The volume of right rectangular prism Y is 1,250 cubic centimeters (cm^3). What is the sum of the volumes, in cm^3 , of right rectangular prism X and right rectangular prism Y?

#6

ID: 9fec9d49

The floor of a ballroom has an area of 600 square meters. An architect creates a scale model of the floor of the ballroom, where the length of each side of the model is $\frac{1}{10}$ times the length of the corresponding side of the actual floor of the ballroom. What is the area, in square meters, of the scale model?

- A) 6
- B) 10
- C) 60
- D) 150

#7

ID: ba8ca563

A cube has a volume of 474,552 cubic units. What is the surface area, in square units, of the cube?

#8

ID: 899c6042

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 $n\pi$ cm³. What is the value of n ?

#9

ID: b0dc920d

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) $V = 4\pi^3$
- B) $V = \pi(2r)^3$
- C) $V = \pi^2 + 4\pi$
- D) $V = \pi^3 + 4\pi^2$

#10

ID: 8c1aa743

Rectangles ABCD and EFGH are similar. The length of each side of EFGH is 6 times the length of the corresponding side of ABCD. The area of ABCD is 54 square units. What is the area, in square units, of EFGH?

- A) 9
- B) 36
- C) 324
- D) 1,944

#11

ID: 5b2b8866

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?

#12

ID: 9f934297

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 cm^2 , of the right rectangular prism?

#13

ID: dc71597b

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

#14

ID: 1be8b6b2

A right circular cone has a volume of $71,148\pi$ cubic centimeters and the area of its base is $5,929\pi$ square centimeters. What is the slant height, in centimeters, of this cone?

- A) 12
- B) 36
- C) 77
- D) 85

#15

ID: f243c383

Two identical rectangular prisms each have a height of 90 centimeters (cm). The base of each prism is a square, and the surface area of each prism is $K \text{ cm}^2$. If the prisms are glued together along a square base, the resulting prism has a surface area of $\frac{92}{47}K \text{ cm}^2$. What is the side length, in cm, of each square base?

- A) 4
- B) 8
- C) 9
- D) 16

#16

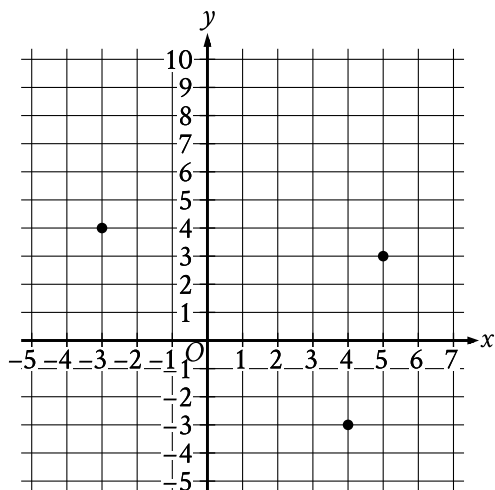
ID: 93de3f84

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

#17

ID: eb70d2d0



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

#18

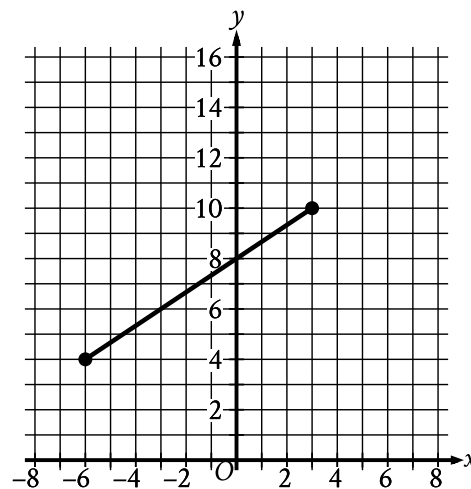
ID: f329442c

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

#19

ID: 099526fc



The line segment shown in the xy -plane represents one of the legs of a right triangle. The area of this triangle is $36\sqrt{13}$ square units. What is the length, in units, of the other leg of this triangle?

- A) 12
- B) 24
- C) $3\sqrt{13}$
- D) $18\sqrt{13}$

#20

ID: f7e626b2

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

#21

ID: 306264ab

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

#22

ID: 459dd6c5

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 ?

#23

ID: 310c87fe

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