Question Bank
Math

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Area and Volume

Question ID 5252e606

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■☐☐

ID: 5252e606

The side length of a square is 55 centimeters (cm). What is the area, in cm^2, of the square?

A. 110

B. 220

C. $3,025$

D. $12,100$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■□□

ID: 59cb654c

The area of a square is 64 square inches. What is the side length, in inches, of this square?

A. 8

B. 16

C. 64

D. 128

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■□□

ID: 0837c3b9

Triangle *ABC* and triangle *DEF* are similar triangles, where $\overline{AB}$ and $\overline{DE}$ are corresponding sides. If $DE = 2AB$ and the perimeter of triangle *ABC* is 20, what is the perimeter of triangle *DEF* ?

A. 10

B. 40

C. 80

D. 120

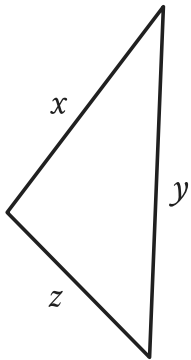| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ☐ ☐

ID: c88183f7

A rectangle has a length of **13** and a width of **6**. What is the perimeter of the rectangle?

A. **12**

B. **26**

C. **38**

D. **52**

Question ID 29e9b28c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■□□

ID: 29e9b28c

Note: Figure not drawn to scale.

The triangle shown has a perimeter of 22 units. If $x = 9$ units and $y = 7$ units, what is the value of z, in units?

A. 6

B. 7

C. 9

D. 16

Question ID 3453aafc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■☐☐

ID: 3453aafc

What is the area, in square centimeters, of a rectangle with a length of **36** centimeters and a width of **34** centimeters?

A. 70

B. 140

C. 1,156

D. 1,224

Question ID f60bb551

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ☐ ☐

ID: f60bb551

The area of a rectangle is 630 square inches. The length of the rectangle is 70 inches. What is the width, in inches, of this rectangle?

A. 9

B. 70

C. 315

D. 560

Question ID 4420e500

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■☐☐

ID: 4420e500

What is the area of a rectangle with a length of 4 centimeters (cm) and a width of $2\ \text{cm}$?

A. $6\ \text{cm}^2$

B. $8\ \text{cm}^2$

C. $12\ \text{cm}^2$

D. $36\ \text{cm}^2$

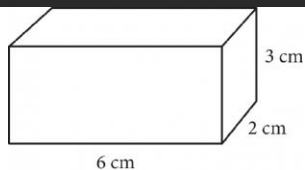| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■□□

ID: 165c30c4

A rectangle has a length of **64** inches and a width of **32** inches. What is the area, in square inches, of the rectangle?

Question ID d683a9cc

1.10

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■☐☐

ID: d683a9cc

The figure shows the lengths, in centimeters (cm), of the edges of a right rectangular prism. The volume V of a right rectangular prism is ℓwh, where ℓ is the length of the prism, w is the width of the prism, and h is the height of the prism. What is the volume, in cubic centimeters, of the prism?

A. 36

B. 24

C. 12

D. 11

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: f67e4efc

A right circular cylinder has a volume of 45π. If the height of the cylinder is 5, what is the radius of the cylinder?

A. 3

B. 4.5

C. 9

D. 40

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: 5afbdc8e

What is the length of one side of a square that has the same area as a circle with radius 2 ?

A. 2

B. $\sqrt{2\pi}$

C. $2\sqrt{\pi}$

D. 2π

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: ec5d4823

What is the volume, in cubic centimeters, of a right rectangular prism that has a length of 4 centimeters, a width of 9 centimeters, and a height of 10 centimeters?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: 151eda3c

A manufacturing company produces two sizes of cylindrical containers that each have a height of 50 centimeters. The radius of container A is 16 centimeters, and the radius of container B is 25% longer than the radius of container A. What is the volume, in cubic centimeters, of container B?

A. $16{,}000\,\pi$

B. $20{,}000\,\pi$

C. $25{,}000\,\pi$

D. $31{,}250\,\pi$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■□

ID: 38517165

A circle has a circumference of 31π centimeters. What is the diameter, in centimeters, of the circle?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: 08b7a3f5

A triangular prism has a height of 8 **centimeters (cm)** and a volume of 216 **cm^3**. What is the area, **in cm^2**, of the base of the prism? (The volume of a triangular prism is equal to Bh, where B is the area of the base and h is the height of the prism.)

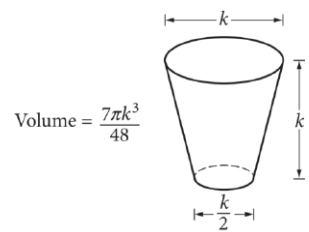| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: a2e76b60

A cylindrical can containing pieces of fruit is filled to the top with syrup before being sealed. The base of the can has an area of 75 cm^2, and the height of the can is 10 cm. If 110 cm^3 of syrup is needed to fill the can to the top, which of the following is closest to the total volume of the pieces of fruit in the can?

A. 7.5 cm^3

B. 185 cm^3

C. 640 cm^3

D. 750 cm^3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: 37dde49f

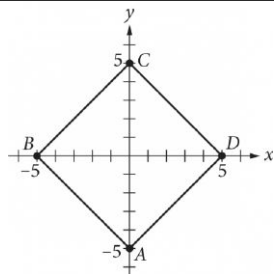$$\text{Volume} = \frac{7\pi k^3}{48}$$

The glass pictured above can hold a maximum volume of 473 cubic centimeters, which is approximately 16 fluid ounces. What is the value of k, in centimeters?

A. 2.52

B. 7.67

C. 7.79

D. 10.11

Question ID cf53cb56

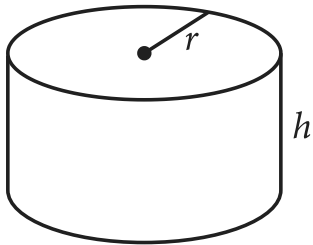| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■☐

ID: cf53cb56

In the *xy*-plane shown, square *ABCD* has its diagonals on the *x*- and *y*-axes. What is the area, in square units, of the square?

A. 20

B. 25

C. 50

D. 100

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ■ ■

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 $H = 8h$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

ID: 899c6042

A right circular cone has a height of 22 $\textbf{centimeters (cm)}$ 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?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ■ ■

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

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

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?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

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?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

ID: dc71597b

A right circular cone has a volume of $\dfrac{1}{3}\pi$ cubic feet and a height of 9 feet.

What is the radius, in feet, of the base of the cone?

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

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

C. $\sqrt{3}$

D. 3

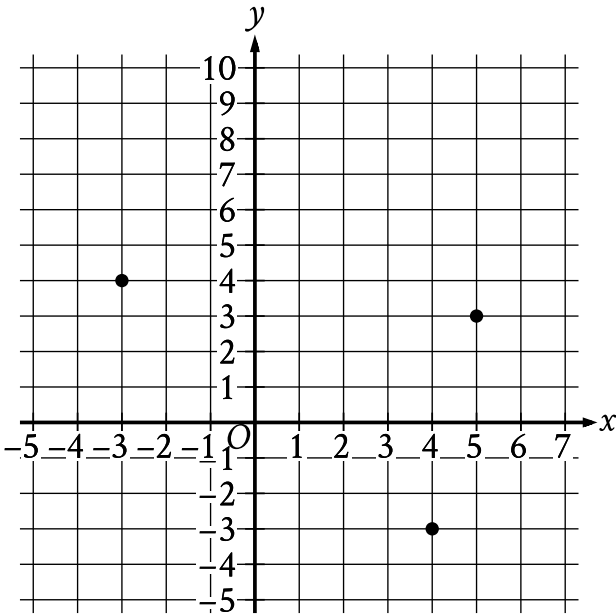| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ■ ■

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

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ■ ■

ID: eb70d2d0

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

Question ID f7e626b2

3.9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

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

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■ ■ ■

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?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	■■■

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