

SAT Prep

Geometry & Trigonometry 2



CONCEPTS

QUESTIONS

1. A marble slab in the shape of a right rectangular prism has dimensions of 100 centimetres by 80 centimetres by 5 centimetres. The slab has a density of 2.6 grams per cubic centimetre. What is the mass of the marble slab, in grams? (Density is mass per unit volume.)
- A. 481
 - B. 10,400
 - C. 15,384
 - D. 104,000



QUESTIONS

2. If a right cylinder with a radius of 2 cm has a volume of 100π cm³, what is the height, in centimetres, of the cylinder?
- A. 20
 - B. 25
 - C. 40
 - D. 50

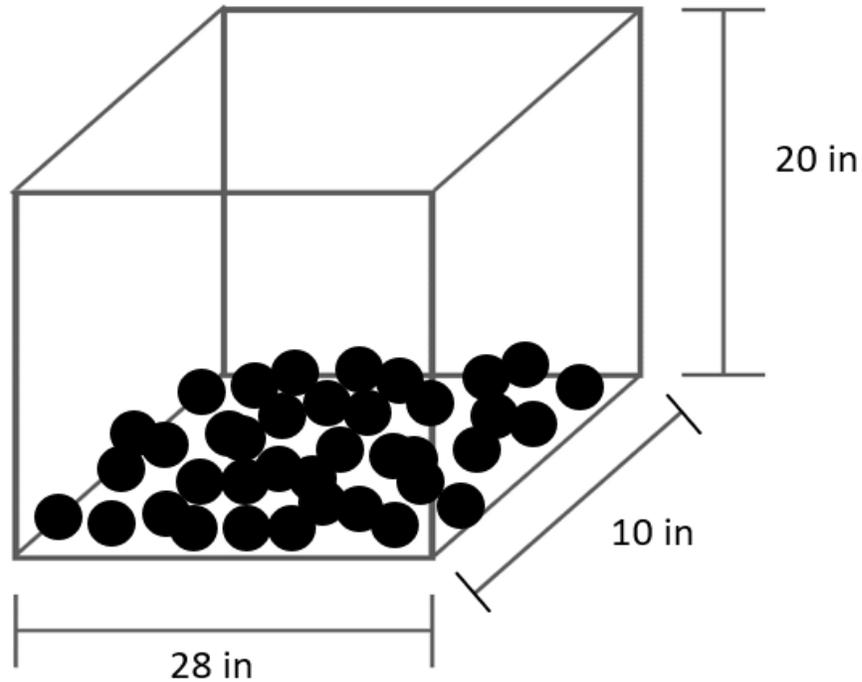
QUESTIONS

3. A cube and a rectangular solid are equal in volume. If the lengths of the edges of the rectangular solid are 4, 8, and 16, what is the length of an edge of the cube?



QUESTIONS

4.



The bottom of the fish tank shown is filled with rocks. The tank is then filled with water to a height of 18 inches. When the rocks are removed, the height of the water drops to 16.5 inches. How many cubic inches of water do the rocks displace?

- A. 280
- B. 420
- C. 560
- D. 980

QUESTIONS

5. What is the radius of the largest sphere that can be placed inside a cube that has a volume of 64 cubic units?
- A. 2
 - B. $2\sqrt{2}$
 - C. 4
 - D. 8



QUESTIONS

6. A cylinder has a volume of 72π cubic inches and a height of 8 inches. If the height is increased by 4 inches, what will be the new volume of the cylinder in cubic inches?
- A. 76π
 - B. 108π
 - C. 328π
 - D. 576π



QUESTIONS

7. Milk is poured from a full rectangular container with dimensions 4 inches by 9 inches by 10 inches into a cylindrical container with a diameter of 6 inches. Assuming all the milk is transferred without spillage, how many inches high will the milk reach in the cylindrical container?

A. $\frac{40}{\pi}$

B. $\frac{60}{\pi}$

C. 24

D. 30



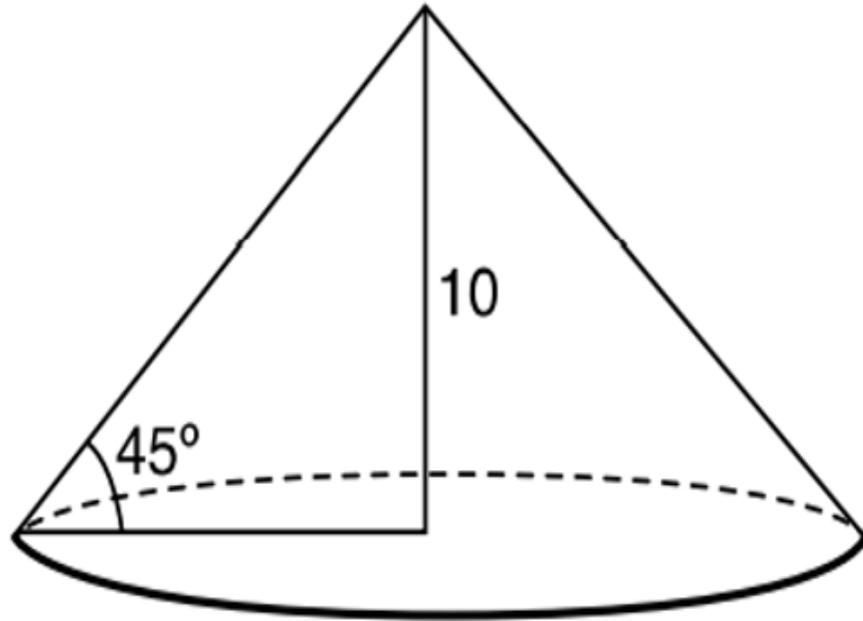
QUESTIONS

8. A solid, cone-shaped lead crystal paperweight has a height of 5 centimetres and a base diameter that is 20% larger than the height. If the density of lead crystal is 3.1 g/cm^3 , what is the approximate mass of the paperweight? (Round your answer to the nearest gram.)



QUESTIONS

9.

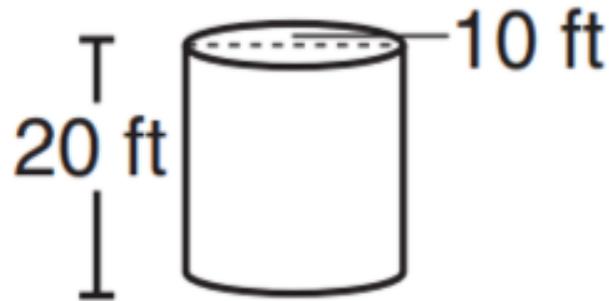


A right circular cone has a height of 10 inches as shown below. A 45-degree angle is formed by the radius and the slant height of the cone. What is the volume of the cone in cubic inches?

- A. $\frac{100}{3} \pi$
- B. $\frac{1000}{3} \pi$
- C. $\frac{2000}{3} \pi$
- D. 1000π

QUESTIONS

10.



A cylindrical grain bin is being filled. The height of the grain bin is 20 feet and the diameter of its base is 10 feet. After the first 10 minutes, the height of the grain in the bin is 1 foot. At this rate, what will be the volume of the grain in the bin after the first hour?

- A. 150 cubic feet
- B. 100π cubic feet
- C. 150π cubic feet
- D. 600 cubic feet



QUESTIONS

11. If the length of an edge of cube X is twice the length of an edge of cube Y, what is the ratio of the volume of cube Y to the volume of cube X?

A. $\frac{1}{2}$

B. $\frac{1}{4}$

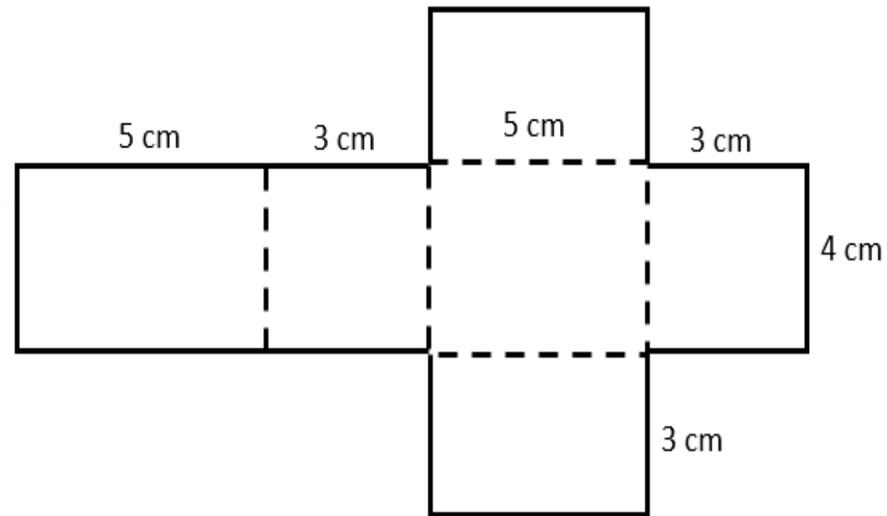
C. $\frac{1}{6}$

D. $\frac{1}{8}$



QUESTIONS

12.

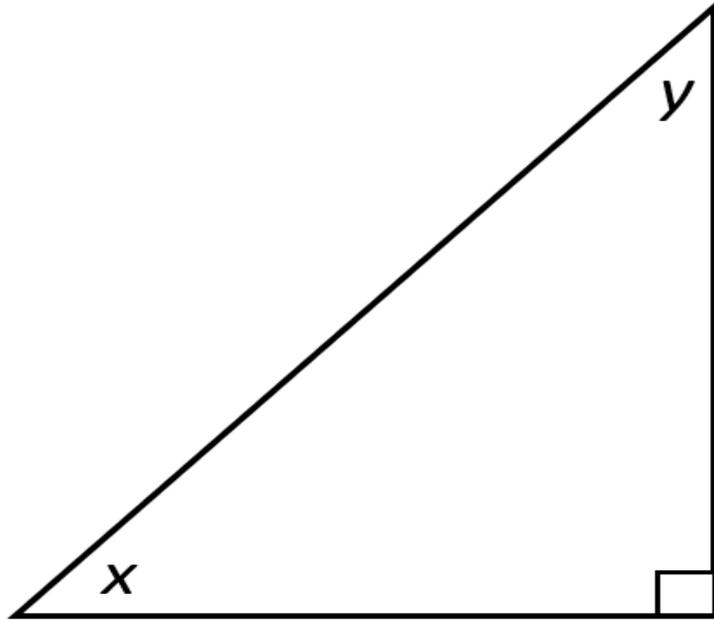


If the given figure is folded along the dashed lines, a rectangular box will be formed. What is the volume of the box in cubic centimetres?

- A. 45
- B. 60
- C. 72
- D. 81

QUESTIONS

13.



In the right triangle above, $\cos x = 0.8$. What is the value of $\cos y$?

- A. $\frac{1}{5}$
- B. $\frac{3}{5}$
- C. $\frac{3}{4}$
- D. $\frac{4}{5}$

QUESTIONS

14. If the longer leg of a right triangle has length 32 centimeters, and the measure of the angle that is the adjacent to that leg is 30° , which of the following represents the length in centimeters, of the hypotenuse of the triangle?

A. $32 \times \sin 30^\circ$

B. $32 \times \cos 30^\circ$

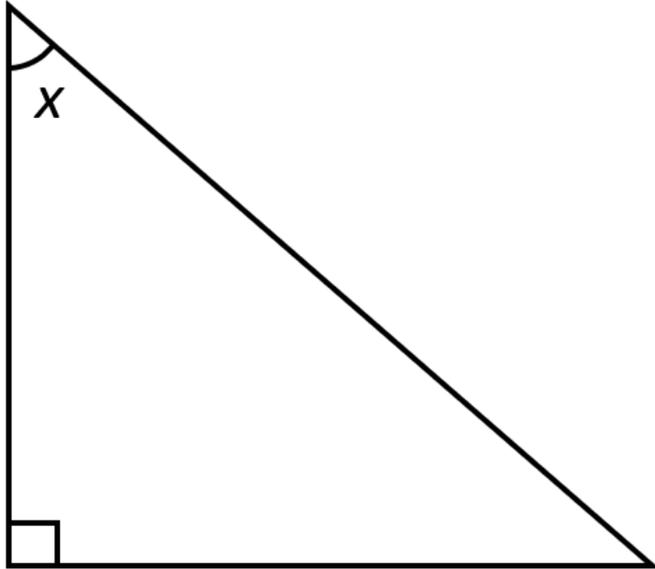
C. $\frac{32}{\sin 30^\circ}$

D. $\frac{32}{\cos 30^\circ}$



QUESTIONS

15.



In the triangle above, $\tan x = \frac{\sqrt{7}}{3}$. What is $\cos x$?

- A. $\frac{\sqrt{7}}{4}$
- B. $\frac{\sqrt{2}}{3}$
- C. $\frac{3\sqrt{2}}{2}$
- D. $\frac{3}{4}$

QUESTIONS

16. In a right triangle, one angle measures x° , where $\sin x = \frac{1}{15}$. What is $\cos (90^\circ - x^\circ)$?



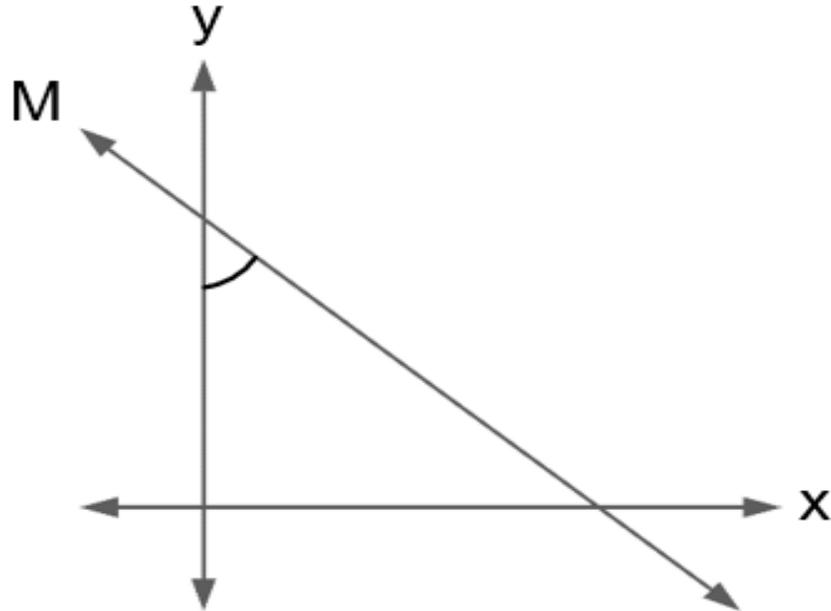
QUESTIONS

17. The angles of a triangle are in the ratio $1:2:3$. What is the sine of the smallest angle?



QUESTIONS

18.



Note: Figure not drawn to scale.

The equation of line M shown above is

$y = -\frac{3}{4}x + 5$. Given that angle A is the acute angle formed by the intersection of line M and the y-axis, which expression could be used to find the measure of angle A?

A. $\cos A = \frac{3}{4}$

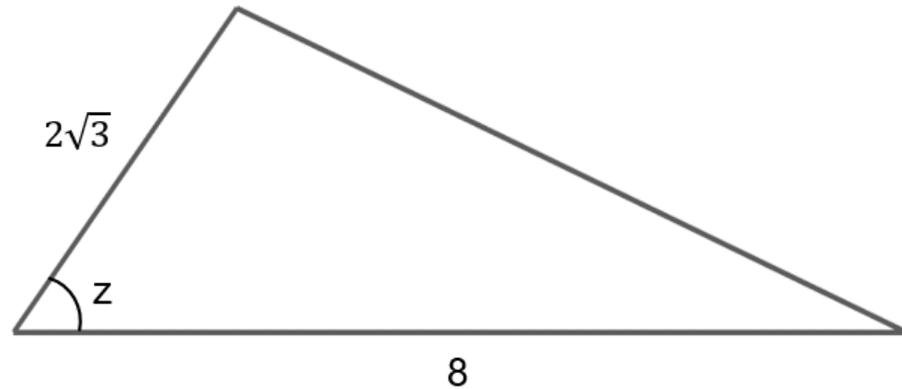
B. $\sin A = \frac{4}{3}$

C. $\tan A = \frac{4}{3}$

D. $\cos A = \frac{4}{5}$

QUESTIONS

19.



Note: Figure not drawn to scale.

If the area of the triangle shown is 12 square inches, what is the value of $\cos z$?

- A. $\frac{1}{2}$
- B. $\frac{\sqrt{2}}{2}$
- C. $\frac{\sqrt{3}}{2}$
- D. 1

QUESTIONS

20. In triangle XYZ (not shown), the measure of $\angle Y$ is 90° , $YZ = 12$, and $XZ = 15$. Triangle HJK is similar to triangle XYZ , where vertices H , J , and K correspond to vertices X , Y and Z , respectively, and each side of triangle HJK is $\frac{1}{5}$ the length of the corresponding side of triangle XYZ . What is the value of $\tan K$?





Thank you