UNIT 2 EXERCISES 6-10

3D GEO

2015A

7. Two right circular cylinders have the same volume. The radius of the second cylinder is 10% more than the radius of the first. What is the relationship between the heights of the two cylinders?

(A) The second height is 10% less than the first.

(B) The first height is 10% more than the second.

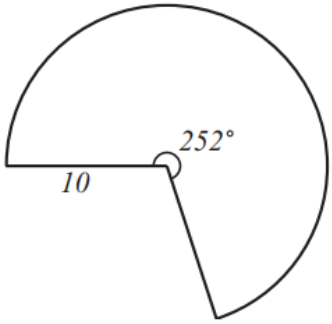
(C) The second height is 21% less than the first.

(D) The first height is 21% more than the second.

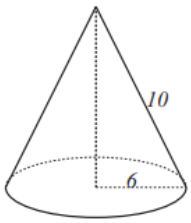
(E) The second height is 80% of the first.

2001

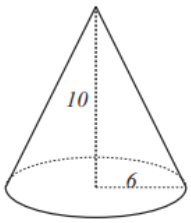
8. Which of the cones below can be formed from a 252° sector of a circle of radius 10 by aligning the two straight sides?



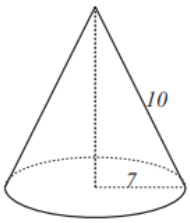
(A)



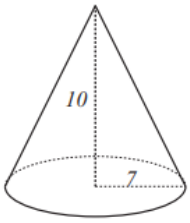
(B)



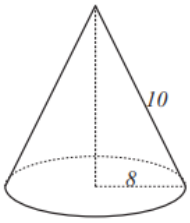
(C)



(D)



(E)



2008A

8. What is the volume of a cube whose surface area is twice that of a cube with volume 1 ?

(A) $\sqrt{2}$ **(B)** 2 **(C)** $2\sqrt{2}$ **(D)** 4 **(E)** 8

2016B 8. A thin piece of wood of uniform density in the shape of an equilateral triangle with side length 3 inches weighs 12 ounces. A second piece of the same type of wood, with the same thickness, also in the shape of an equilateral triangle, has side length 5 inches. Which of the following is closest to the weight, in ounces, of the second piece?

(A) 14.0 **(B)** 16.0 **(C)** 20.0 **(D)** 33.3 **(E)** 55.6

2017A 8. The region consisting of all points in three-dimensional space within 3 units of line segment $\overline{AB}$ has volume 216π. What is the length AB?

(A) 6 **(B)** 12 **(C)** 18 **(D)** 20 **(E)** 24

2010A 9. A solid cube has side length 3 inches. A 2-inch by 2-inch square hole is cut into the center of each face. The edges of each cut are parallel to the edges of the cube, and each hole goes all the way through the cube. What is the volume, in cubic inches, of the remaining solid?

(A) 7 **(B)** 8 **(C)** 10 **(D)** 12 **(E)** 15

2005A 10. A wooden cube n units on a side is painted red on all six faces and then cut into n^3 unit cubes. Exactly one-fourth of the total number of faces of the unit cubes are red. What is n?

(A) 3 **(B)** 4 **(C)** 5 **(D)** 6 **(E)** 7