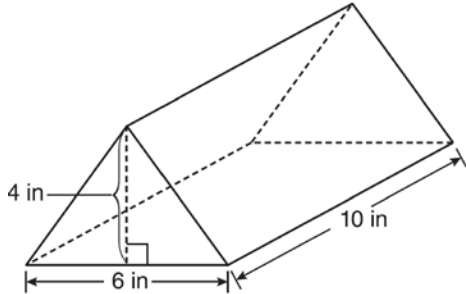


G.GMD.A.3: Volume 1

- 1 A packing carton in the shape of a triangular prism is shown in the diagram below.



What is the volume, in cubic inches, of this carton?

- 1) 20
 - 2) 60
 - 3) 120
 - 4) 240
- 2 A fish tank in the shape of a rectangular prism has dimensions of 14 inches, 16 inches, and 10 inches. The tank contains 1680 cubic inches of water. What percent of the fish tank is empty?
- 1) 10
 - 2) 25
 - 3) 50
 - 4) 75
- 3 The volume of a rectangular prism is 144 cubic inches. The height of the prism is 8 inches. Which measurements, in inches, could be the dimensions of the base?
- 1) 3.3 by 5.5
 - 2) 2.5 by 7.2
 - 3) 12 by 8
 - 4) 9 by 9

- 4 A rectangular prism has a volume of $3x^2 + 18x + 24$. Its base has a length of $x + 2$ and a width of 3. Which expression represents the height of the prism?
- 1) $x + 4$
 - 2) $x + 2$
 - 3) 3
 - 4) $x^2 + 6x + 8$

- 5 A right prism has a square base with an area of 12 square meters. The volume of the prism is 84 cubic meters. Determine and state the height of the prism, in meters.

- 6 The Parkside Packing Company needs a rectangular shipping box. The box must have a length of 11 inches and a width of 8 inches. Find, to the *nearest tenth of an inch*, the minimum height of the box such that the volume is *at least* 800 cubic inches.

- 7 The base of a right pentagonal prism has an area of 20 square inches. If the prism has an altitude of 8 inches, determine and state the volume of the prism, in cubic inches.

- 8 A carpenter made a storage container in the shape of a rectangular prism. It is 5 feet high and has a volume of 720 cubic feet. He wants to make a second container with the same height and volume as the first one, but in the shape of a triangular prism. What will be the number of square feet in the area of the base of the new container?
- 1) 36
 - 2) 72
 - 3) 144
 - 4) 288
- 9 A rectangular prism has a base with a length of 25, a width of 9, and a height of 12. A second prism has a square base with a side of 15. If the volumes of the two prisms are equal, what is the height of the second prism?
- 1) 6
 - 2) 8
 - 3) 12
 - 4) 15
- 10 Two prisms have equal heights and equal volumes. The base of one is a pentagon and the base of the other is a square. If the area of the pentagonal base is 36 square inches, how many inches are in the length of each side of the square base?
- 1) 6
 - 2) 9
 - 3) 24
 - 4) 36
- 11 Tim has a rectangular prism with a length of 10 centimeters, a width of 2 centimeters, and an unknown height. He needs to build another rectangular prism with a length of 5 centimeters and the same height as the original prism. The volume of the two prisms will be the same. Find the width, in centimeters, of the new prism.
- 12 Two prisms with equal altitudes have equal volumes. The base of one prism is a square with a side length of 5 inches. The base of the second prism is a rectangle with a side length of 10 inches. Determine and state, in inches, the measure of the width of the rectangle.

G.GMD.A.3: Volume 1 Answer Section

1 ANS: 3 REF: 081123ge

2 ANS: 2

$$14 \times 16 \times 10 = 2240 \quad \frac{2240 - 1680}{2240} = 0.25$$

REF: 011604geo

3 ANS: 2 REF: 011215ge

4 ANS: 1

$$\frac{3x^2 + 18x + 24}{3(x+2)}$$

$$\frac{3(x^2 + 6x + 8)}{3(x+2)}$$

$$\frac{3(x+4)(x+2)}{3(x+2)}$$

$$x+4$$

REF: fall0815ge

5 ANS:

$$Bh = V$$

$$12h = 84$$

$$h = 7$$

REF: 011432ge

6 ANS:

$$9.1. (11)(8)h = 800$$

$$h \approx 9.1$$

REF: 061131ge

7 ANS:

$$V = 20 \times 8 = 160$$

REF: 011633ge

8 ANS: 3

$$720 = 5B$$

$$144 = B$$

REF: 081523ge

9 ANS: 3

$$25 \times 9 \times 12 = 15^2 h$$

$$2700 = 15^2 h$$

$$12 = h$$

REF: 061323ge

10 ANS: 1

If two prisms have equal heights and volume, the area of their bases is equal.

REF: 081321ge

11 ANS:

4. $l_1 w_1 h_1 = l_2 w_2 h_2$

$$10 \times 2 \times h = 5 \times w_2 \times h$$

$$20 = 5w_2$$

$$w_2 = 4$$

REF: 011030ge

12 ANS:

$$5 \cdot 5 = 10w$$

$$25 = 10w$$

$$2.5 = w$$

REF: 061432ge