

Name: Answer Key

# Final Exam Prep Individual Practice

## Volume Exercises

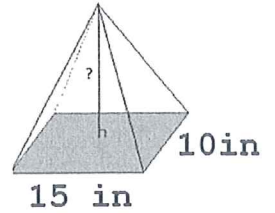
1. The volume of the pyramid shown is  $300 \text{ in}^3$ . What is the height of the pyramid?

$$V = \frac{1}{3} B \cdot h$$

$$300 = \frac{1}{3} (15 \times 10) h$$

$$300 = 50h$$

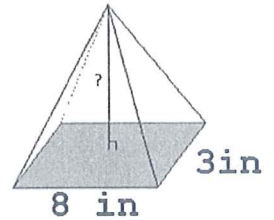
$$h = 6 \text{ in}$$



2. The volume of the pyramid shown is  $96 \text{ in}^3$ . What is the height of the pyramid?

$$96 = \frac{1}{3} 8 \times 3 h$$

$$h = 12 \text{ in}$$

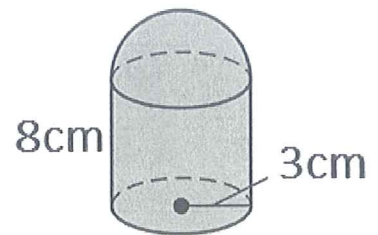


3. Find the volume of the composite solid made of a cylinder and hemisphere. Round to the nearest tenth in cubic centimeters.

$$V = \frac{1}{2} \left( \frac{4}{3} \pi r^3 \right) + \pi r^2 \cdot H$$

$$V = \frac{1}{2} \left( \frac{4}{3} \pi 3^3 \right) + \pi 3^2 \times 8$$

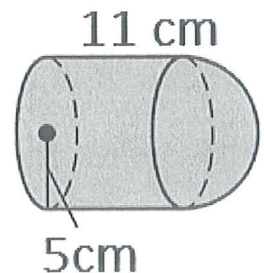
$$V \approx 282.7 \text{ cm}^3$$



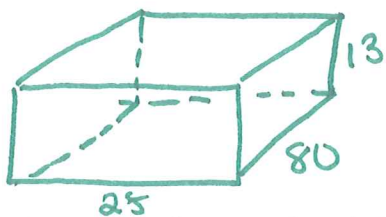
4. Find the volume of the composite solid made of a cylinder and hemisphere. Round to the nearest tenth in cubic centimeters.

$$V = \frac{1}{2} \left( \frac{4}{3} \pi 5^3 \right) + \pi 5^2 \times 11$$

$$V \approx 1125.7 \text{ cm}^3$$



5. In order to clean her aquarium (which is a rectangular prism), Bianca must remove half of the water. The aquarium measures 80 inches long, 25 inches wide, and 13 inches deep. The aquarium is currently completely full. What volume of water, in cubic inches, must Bianca remove?

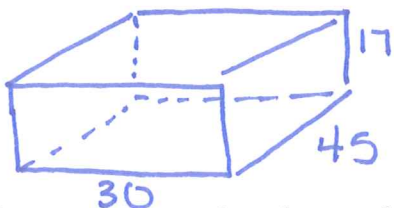


$$\textcircled{1} 25 \times 80 \times 13 = 26,000$$

$$\textcircled{2} \frac{1}{2} 26,000$$

$$V = 13,000 \text{ in}^3$$

6. In order to clean her aquarium (which is a rectangular prism), Bianca must remove a fourth of the water. The aquarium measures ~~80~~<sup>45</sup> inches long, ~~25~~<sup>30</sup> inches wide, and ~~13~~<sup>17</sup> inches deep. The aquarium is currently completely full. What volume of water, in cubic inches, must Bianca remove?



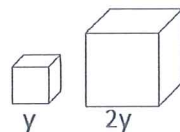
$$\textcircled{1} 17 \times 45 \times 30 = 22,950$$

$$\textcircled{2} \frac{1}{4} 22,950$$

$$= 5737.5 \text{ in}^3$$

7. A large cube has edges that are double as long as those of a small cube. The volume of the large cube is how many times the volume of the small cube?

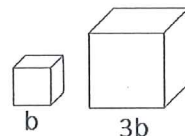
$$VR = \left(\frac{y}{2y}\right)^3 = \frac{y^3}{8y^3}$$



8 times larger

8. A large cube has edges that are triple the length as long as those of a small cube. The volume of the large cube is how many times the volume of the small cube?

$$VR = \left(\frac{b}{3b}\right)^3 = \frac{b^3}{27b^3}$$



27 times larger

9. An ice cream cone is 12 centimeters deep and has a diameter of 9 centimeters. A spherical scoop of ice cream that is 9 centimeters in diameter rests on the top of the cone. If all the ice cream melts into the cone, will the cone overflow? Explain.



$$V = \frac{1}{3} \pi (4.5)^2 \times 12$$

$$V_{\text{cone}} = 254.5 \text{ cm}^3$$

$$V = \frac{4}{3} \pi (4.5)^3$$

$$V_{\text{sphere}} = 381.7 \text{ cm}^3$$

Yes, it will overflow because the ice cream has more volume.