

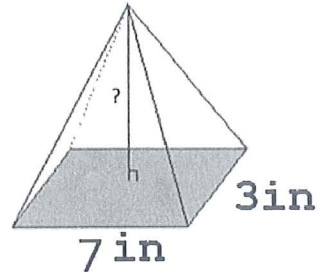
Name: Key

Final Exam Prep Practice

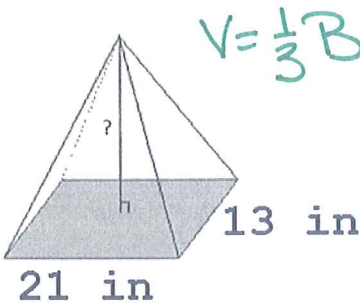
Volume Examples

1. The volume of the pyramid shown is 140 in^3 . What is the height of the pyramid?

$$V = \frac{1}{3} B \cdot h \quad 140 = \frac{1}{3} (7 \times 3) h$$
$$\boxed{h = 20 \text{ in}}$$



2. You Try: The volume of the pyramid shown is 1001 in^3 . What is the height of the pyramid?



$$V = \frac{1}{3} B \cdot h \quad 1001 = \frac{1}{3} (21 \times 13) h$$

$$1001 = 91h$$

$$\boxed{11 \text{ in} = h}$$

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

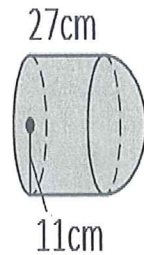
$$V = \frac{1}{2} \text{ Sphere} + \text{Cylinder}$$

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

$$V = \frac{1}{2} \left(\frac{4}{3} \pi (11)^3 \right) + \pi 11^2 \cdot 27$$

$$\boxed{V = 13051.2 \text{ cm}^3}$$

$$r = 11$$
$$H = 27$$

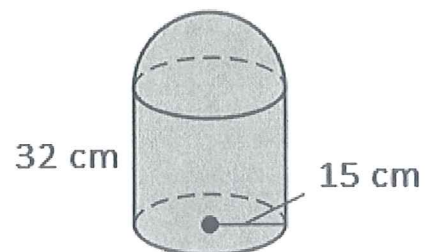


4. YOU TRY: Find the volume of the composite solid made of a cylinder and hemisphere. Round to the nearest tenth in cubic centimeters.

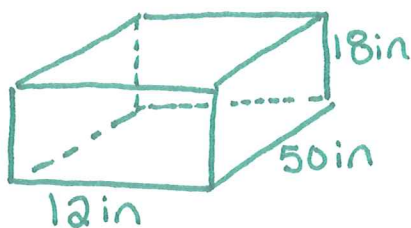
$$V = \frac{1}{2} \left(\frac{4}{3} \pi r^3 \right) + \pi r^2 \cdot h$$

$$V = \frac{1}{2} \left(\frac{4}{3} \pi (15)^3 \right) + \pi 15^2 \cdot 32$$

$$\boxed{V \approx 29,688.1 \text{ cm}^3}$$



5. In order to clean her aquarium (which is a rectangular prism), Bianca must remove half of the water. The aquarium measures 50 inches long, 12 inches wide, and 18 inches deep. The aquarium is currently completely full. What volume of water, in cubic inches, must Bianca remove?



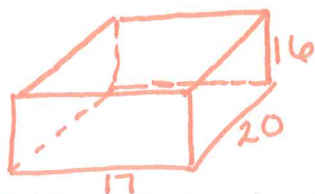
① Find Volume

$$V = 12 \times 50 \times 18 = 10,800 \text{ in}^3$$

② Remove $\frac{1}{2}$ water = $\frac{1}{2} 10,800$

$$V_{\frac{1}{2}} = 5400 \text{ in}^3$$

6. In order to clean her aquarium (which is a rectangular prism), Bianca must remove a fourth of the water. The aquarium measures ~~50~~²⁰ inches long, ~~12~~¹⁷ inches wide, and ~~18~~¹⁶ inches deep. The aquarium is currently completely full. What volume of water, in cubic inches, must Bianca remove?

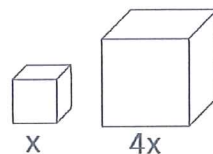


$$V = 16 \times 20 \times 17 = 5440 \text{ in}^3$$

$$\frac{1}{4} 5440 = 1360 \text{ in}^3$$

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

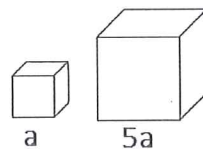
$$VR = \left(\frac{x}{4x}\right)^3 = \frac{x^3}{4^3 x^3} = \frac{x^3}{64 x^3}$$



64 times larger

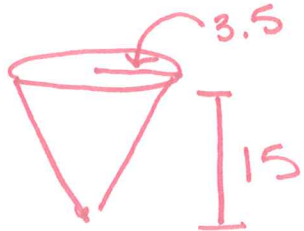
8. A large cube has edges that are 5 times as long as those of a small cube. The volume of the large cube is how many times the volume of the small cube?

$$\left(\frac{a}{5a}\right)^3 = \frac{a^3}{125 a^3}$$



125 times larger

9. An ice cream cone is 15 centimeters deep and has a diameter of 7 centimeters. A spherical scoop of ice cream that is 7 centimeters in diameter rests on the top of the cone. If all the ice cream melts into the cone, will the cone overflow? Explain.



$$V_{\text{cone}} = \frac{1}{3} \pi 3.5^2 \times 15$$

$$V_{\text{cone}} = 192.4 \text{ cm}^3$$

$$V_{\text{sphere}} = \frac{4}{3} \pi (3.5)^3 = 179.6 \text{ cm}^3$$

No, the volume of the sphere is less than the V_{cone} \therefore it won't overflow