

Graphs and Volume Day 3 HOMEWORK

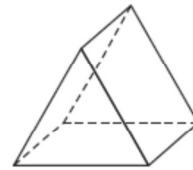
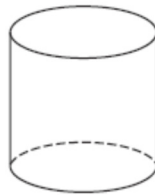
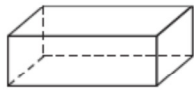
Deriving Formulas & Cavalieri's Principle

1. The volume of prisms and cylinders can be represented with Bh , where B represents the area of the base. Identify the name of the figure shown and match the shape with the appropriate volume formula.

A. $V = \pi r^2 H$

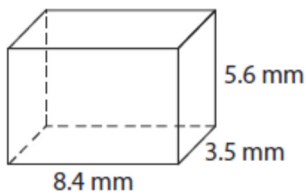
B. $V = \frac{1}{2}bhH$

C. $V = lwH$

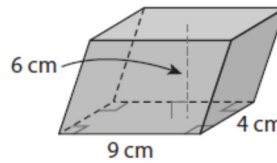


For each problem below give your answer as BOTH an exact & an approximation to the hundredths place. UNITS!!!! Find the volume of the following figures:

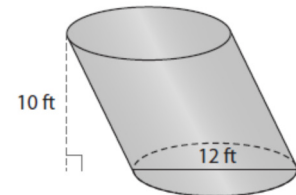
2.



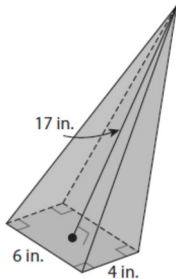
3.



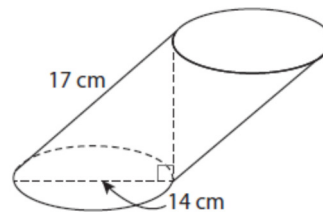
4.



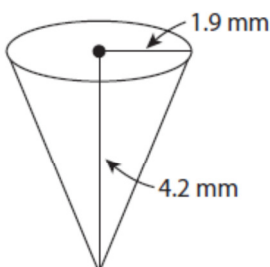
5.



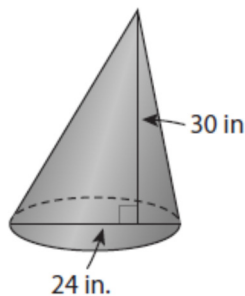
6.



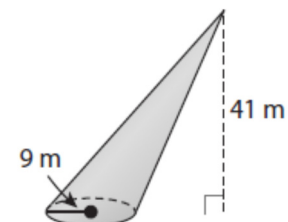
7.



8.



9.



Graphs and Volume Day 3 HOMEWORK

10. Which of the following equations could describe a square pyramid? Select all that apply.

A. $3Vh = B$

B. $V = \frac{1}{3}\ell wB$

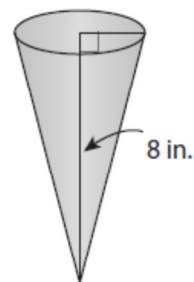
C. $w = \frac{3V}{\ell h}$

D. $\frac{V}{B} = \frac{h}{3}$

E. $V = \frac{w^2h}{3}$

F. $\frac{1}{3} = VBh$

Persevere in Problem Solving A juice stand sells smoothies in cone-shaped cups that are 8 in. tall. The regular size has a 4 in. diameter. The jumbo size has an 8 in. diameter.

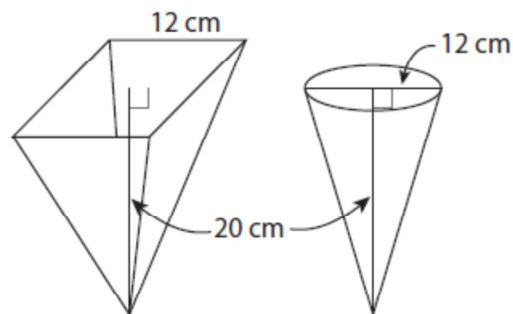


11. **a.** Find the volume of the regular size to the nearest tenth.

- b.** Find the volume of the jumbo size to the nearest tenth.

- c.** The regular size costs \$1.25. What would be a reasonable price for the jumbo size? Explain your reasoning.

12. **Analyze Relationships** Popcorn is available in two cups: a square pyramid or a cone, as shown. The price of each cup of popcorn is the same. Which cup is the better deal? Explain.



Graphs and Volume Day 3 HOMEWORK

13. **Explain the Error** Which volume is incorrect? Explain the error.

A

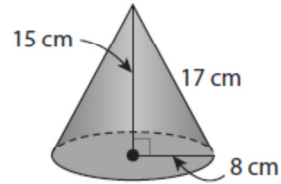
$$V = \frac{1}{3}(\mathcal{B}^2\pi)(17)$$

$$= \frac{1088\pi}{3} \text{ cm}^3$$

B

$$V = \frac{1}{3}(\mathcal{B}^2\pi)(15)$$

$$= 320\pi \text{ cm}^3$$



Planet	Diameter (mi)
Mercury	3,032
Venus	7,521
Earth	7,926
Mars	4,222
Jupiter	88,846
Saturn	74,898
Uranus	31,763
Neptune	30,775

14. **Explain the Error** Margaret used the mathematics shown to find the volume of Saturn.

$$V = \frac{4}{3}\pi r^2 = \frac{4}{3}\pi(74,898)^2 \approx \frac{4}{3}\pi(6,000,000,000) \approx 8,000,000,000\pi$$

Explain the two errors Margaret made, then give the correct answer, round the volume to the nearest billion π .

15. How many times as great as volume of the smallest planet is the volume of the largest planet? Round to the nearest thousand.

BONUS: A bead is formed by drilling a cylindrical hole with a 2mm diameter through a sphere with an 8mm diameter. Estimate the volume of the bead to the nearest whole mm.

