

Geometry Homework – Applications of Volume, Displacement, and Density

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- 3 A triangular pyramid has a volume of 180 cm^3 and a height of 12 cm. Find the length of a side of the triangular base if the triangle's height from that side is 6 cm.
- 4 A trapezoidal pyramid has a volume of 3168 cm^3 , and its height is 36 cm. The lengths of the two bases of the trapezoidal base are 20 cm and 28 cm. What is the height of the trapezoidal base?
- 5 The volume of a cylinder is 628 cm^3 . Find the radius of the base if the cylinder has a height of 8 cm. Round your answer to the nearest 0.1 cm.
- 6 If you roll an 8.5 in. by 11 in. piece of paper into a cylinder by bringing the two longer sides together, you get a tall, thin cylinder. If you roll an 8.5 in. by 11 in. piece of paper into a cylinder by bringing the two shorter sides together, you get a short, fat cylinder. Which of the two cylinders has the greater volume? Explain.
- 7 Sylvia has just discovered that the valve on her cement truck failed during the night and that all the contents ran out to form a giant cone of hardened cement. To make an insurance claim, she needs to figure out how much cement is in the cone. The circumference of its base is 44 feet, and it is 5 feet high. Calculate the volume to the nearest cubic foot.
- 2 You drop a solid glass ball into a cylinder with a radius of 6 cm, raising the water level 1 cm. What is the volume of the glass ball?
- 3 A fish tank 10 in. by 14 in. by 12 in. is the home of a large goldfish named Columbia. She is taken out when her owner cleans the tank, and the water level in the tank drops $\frac{1}{3}$ inch. What is Columbia's volume?
- 4 Which has more mass: a solid cylinder of gold with a height of 5 cm and a diameter of 6 cm, or a solid cone of platinum with a height of 21 cm and a diameter of 8 cm?

Remember: $\text{density} = \frac{\text{mass}}{\text{volume}}$

<i>Metal</i>	<i>Density</i>	<i>Metal</i>	<i>Density</i>
Aluminum	2.81 g/ cm^3	Nickel	8.89 g/ cm^3
Copper	8.97 g/ cm^3	Platinum	21.40 g/ cm^3
Gold	19.30 g/ cm^3	Potassium	0.86 g/ cm^3
Lead	11.30 g/ cm^3	Silver	10.50 g/ cm^3
Lithium	0.54 g/ cm^3	Sodium	0.97 g/ cm^3