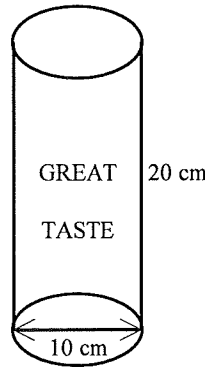
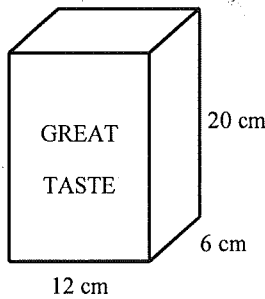


Geometry LT 7.1 Volume Word Problems Practice

Name KEY

1. A cereal company is considering different types of packaging for its new product, "GREAT TASTE".



Which package would hold the greater amount of cereal? Show the work that led to your decision.

Prism: $V = 1440 \text{ cm}^3$

$V = 12 \cdot 6 \cdot 20$

Cylinder: $V \approx 1570.8 \text{ cm}^3$

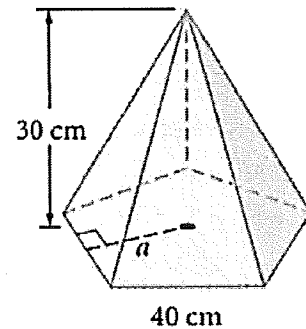
$V = \pi (5)^2 \cdot 20$

2. A king-size waterbed mattress measures 72 in. by 84 in. by 9 in. Water weighs 62.4 pounds per cubic foot. An empty mattress weighs 35 pounds. How much does a full mattress weigh?

$V = (6)(7)(.75) = 31.5 \text{ ft}^3$

Weight = $(31.5)(62.4) + 35 = 2000.6 \text{ lbs}$

3. Bretislav has designed a crystal glass sculpture. Part of the piece is in the shape of a large regular pentagonal pyramid, shown at right. The apothem of the base measures 27.5 cm. How much will this part weigh if the glass he plans to use weighs 2.85 grams per cubic centimeter?



$V = 27,500 \text{ cm}^3$

Weight = $78,375 \text{ g}$

4. If you roll an 8.5-by-11 inch piece of paper into a cylinder by bringing the two *longer* sides together, you get a tall, thin cylinder. If you roll the same piece of paper into a cylinder by bringing the two *shorter* sides together, you get a short, fat cylinder. What are the volumes of the two cylinders?



$$C = 11$$

$$r \approx 1.75$$

$$V \approx 81.78 \text{ in}^3$$

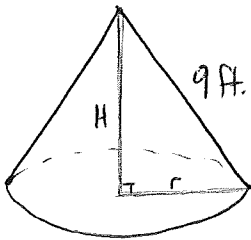


$$C = 8.5$$

$$r \approx 1.35$$

$$V \approx 62.98 \text{ in}^3$$

5. Keith has just discovered that the valve on his 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 to be reimbursed for his losses, he needs to figure out how much cement is in the cone. He was able to find that the circumference of its base is 44 feet and the height up the side of the cone is 9 feet. Calculate the volume of the cone.

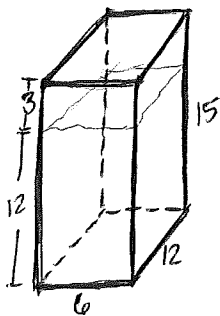


$$C = 44 \text{ ft}$$

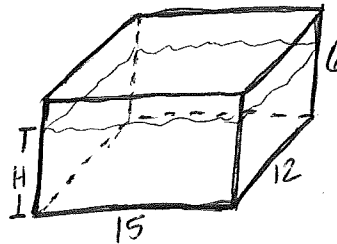
$$r \approx 7 \text{ ft} \quad H \approx 5.66 \text{ ft}$$

$$V \approx 290.43 \text{ ft}^3$$

6. A sealed rectangular container 6 cm by 12 cm by 15 cm is sitting on its *smallest* face. It is filled with water up to 3 cm from the top. How far will the same amount of water go up if the container is placed on its *largest* face?



$$V(\text{water}) = 864 \text{ cm}^3$$



$$864 = 15 \cdot 12 \cdot H$$

$$H = 4.8 \text{ cm}$$