

Problem of the Day: How much cardboard would it take to make the following object?

$SA = 2\pi r h + 2\pi r^2$   
 $2 \cdot \pi \cdot 3.5 \cdot 5.5 + 2\pi \cdot 3.5^2$   
 $r = 3.5$   
 $7 \text{ in.}$

Plan for the Day:  $197.82 \text{ in}^2$


Go over last week's homework

Notes on surface area vs. volume

Homework Week 9 is due tomorrow

Objective: We will be able to determine if a question asks for volume or surface area.

Today is National Boston Cream Pie Day!!



How to tell if a story problem is asking for volume or surface area:

	Volume	Surface area
Units	cubic units (cm <sup>3</sup> )	square units (cm <sup>2</sup> )
Shapes	Prisms, pyramids, cylinders, cones, spheres	Prisms and cylinders
Formula	Multiply/divide	Multiply and add
Types	only volume	lateral or total
Words	capacity amount to fill inside	covers amount around outside make the shape

Determine if the following is describing volume or surface area. Find the correct measurement.


Example 1: A cylindrical trash can has a height of 15 inches and a diameter of 10 inches. What is the maximum amount of garbage that would fit inside the trash can?

$V = Bh$   
 $V = \pi r^2 h$   
 $V = \pi \cdot 5^2 \cdot 15$   
 $V = \pi \cdot 25 \cdot 15$

$B = \pi r^2$   
 $V = 1177.5 \text{ in}^3$

Example 2: Matt is building a dog house in the shape of a rectangular prism. The dog house will measure 3 feet wide, 3 feet long, and 3.5 feet tall. If he does not make the bottom out of wood, how much lumber will Matt need to construct the dog house?


$SA = Ph + B$   
 $B = lw$   
 $P = \frac{1}{2} \cdot 3 + 3 + 3.5$   
 $12 \cdot 3.5 + 33$   
 $42 + 33$   
 $SA = 51 \text{ ft}^2$



Example 3: Lisa wants to take a pumpkin-shaped container trick-or-treating. If the container is shaped like a sphere, how much candy will fit if the diameter is 8 inches?


$r = 4$

$V = \frac{4}{3} \pi r^3$   
 $V = \frac{4}{3} \pi \cdot 4^3$   
 $V = 267.9 \text{ in}^3$



Example 4: Julie takes Oreos and dips them into chocolate. The cookies are 2 inches in diameter and 1/2 in. tall. How much chocolate would it take to cover the cookies?

$SA = 2\pi r h + 2\pi r^2$   
 $2 \cdot \pi \cdot 1 \cdot \frac{1}{2} + 2 \cdot \pi \cdot 1^2$   
 $\pi + 2\pi$   
 $3\pi$   
 $SA = 9.42 \text{ in}^2$



amount of cardboard to make a cereal box

Volume

Surface Area

amount of cardboard to make a cereal box

amount of cardboard to make a cereal box

amount of cardboard to make a cereal box

