Scheduling Group Meetings?

♦ Be sure to understand the difference between **base area** and **lateral surface area**, and realize that they both comprise **surface area**.

Surface Area of Right Prisms and Cylinders: $SA = 2B + ph$

Example 12.19: Find the Surface Area of the gift box.
$\left(B = 800\,\text{cm}^2, p = 120\,\text{cm},\ SA = 2(800) + 120(10) = 1600 + 1200 = 2800\,\text{cm}^2\right)$

Example 12.20: Find the base area and lateral surface area of the can.
$\left(B = \pi(2.5)^2 = 6.25\pi\,\text{cm}^2,\ p = 5\pi\,\text{cm}\right)$
$\left(\text{Amount of metal} = 2(6.25\pi) = 12.5\pi\,\text{cm}^2.\ \text{Amount of cardboard} = (5\pi)(9) = 45\pi\,\text{cm}^2\right)$

Surface Area of Right Regular Pyramids: $SA = B + \frac{1}{2}ps$

Example 12.21: Find the slant height and SA of the pyramid.
$\left(s = \sqrt{13^2 - 5^2} = \sqrt{144} = 12\,\text{cm},\ SA = (10)^2 + \frac{1}{2}(40)(12) = 100 + 240 = 340\,\text{cm}^2\right)$

Surface Area of Right Circular Cones: $SA = \pi r^2 + \pi rs$

Example 12.22: Find the lateral surface area of the cone.
$\left(\pi rs = \pi(1)(6) = 6\pi\,\text{cm}^2\right)$

Volume of Right Prisms and Cylinders: $V = Bh$

Example 12.23: Volumes of the gift box and can.
$\left(V_{box} = Bh = 800(10) = 8000\,\text{cm}^3\right)$
$\left(V_{can} = Bh = (\pi(2.5)^2)(9) = 6.25\pi(9) = 56.25\pi\,\text{cm}^3\right)$

Volume of General Prisms and Cylinders: $V = Bh$
♦ Make sure you have the **height** (perpendicular to the base), and not the **slant height**!

We can split a rectangular prism along its diagonals into 3 equal pyramids, thus:
Volume of General Pyramids and Cones: $V = \frac{1}{3}Bh$

Example 12.24: Volume of the Pyramid of Khafre
$\left(V = \frac{1}{3}(215^2)(145) = \frac{1}{3}(46225)(145) = 2234208.3\,\text{m}^3\right)$

Volume of a Sphere: $V = \frac{4}{3}\pi r^3$

Example 12.25: Volume of an ice cream cone
$\left(V_{top} = \frac{1}{2}(\frac{4}{3}\pi(1.5)^3) = 2.25\pi\,\text{in}^3,\ V_{cone} = \frac{1}{3}(\pi(1.5)^2)(5) = 3.75\pi\,\text{in}^3,\ V = 6\pi\,\text{in}^3\right)$

Surface Area of a Sphere: $SA = 4\pi r^2$

Example 12.26: Comparing Earth to Jupiter

Theorem: Similarity Principle of Measurement

Example 12.27: Using the Similarity Principle

Homework 7 (due 4/6/10):

- Section 12.3 # 2ac, 3, 4ab, 5, 6, 9, 32
- Section 12.4 # 2b, 3c, 4d, 5d, 6ab, 19a, 23