

PROBLEM-OF-THE-DAY: ALGEBRA 1**WEEK:** October 22 to October 26**DAY:** Thursday

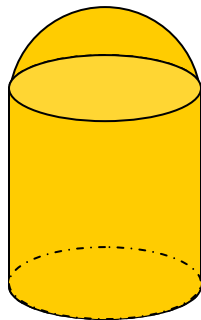
RISD Objective: Given a solid figure (including composite figures) and/or a word problem, students will find the surface area, applying it as necessary.

PROBLEM #47

Find the surface area of the composite figure if the diameter of the container is 8 m and the height is 15 m. Please round your answer to the nearest tenth.

$$SA = 2\pi rh + 2\pi r^2 \text{ (Cylinder)}$$

$$SA = 4\pi r^2 \text{ (sphere)}$$



MODEL SOLUTION #47

First, we need to find the radius to find the surface area of the cylinder.

Diameter = 8 m, so radius = 4 m

SA of Cylinder

Because we need the surface area of the cylinder *excluding* the top, the formula becomes:

$$SA = 2\pi rh + \pi r^2$$

$$SA = 2(\pi)(4)(15) + (\pi)(4)^2$$

Now replace $\pi = 3.14$

$$SA = 2(3.14)(4)(15) + (3.14)(4)^2$$

$$SA = 376.80 + 50.24$$

$$SA = 427.04m^2$$

SA of Half Sphere

Since we only need the surface area of half the sphere, we can divide the formula by 2.

$$SA = \frac{1}{2}(4\pi r^2)$$

$$SA = 2\pi r^2$$

$$SA = 2(3.14)(4)^2$$

$$SA = 6.28 \cdot 16$$

$$SA = 100.48m^2$$

Now, we can just add the surface area of the cylinder and half the sphere.

$$427.04 + 100.48 = 527.52$$

Therefore, the surface area of the composite figure is **527.52 m²**.