

February 18

### SCO (Specific Curriculum Outcome)

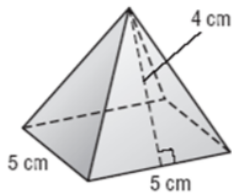
**M5** Solve problems using SI and imperial units, that involve the surface area of 3-D objects including right cones, right cylinders, right prisms, right pyramids and spheres.

**M (Measurement):** Develop spatial sense through direct and indirect measurement.



# SHAPES

- name them.



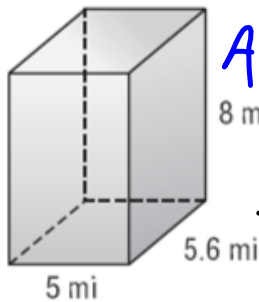
$$A = A_{\text{base}} + A_{\text{lateral faces}}$$

right pyramid



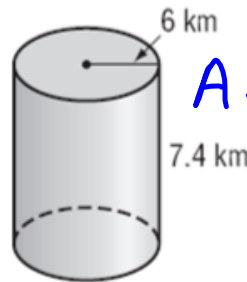
$$A = \pi r^2 + \pi r s$$

right cone



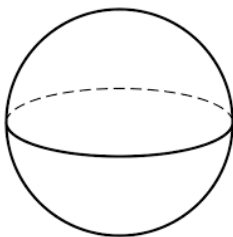
$$A = 2ul + 2wh + 2eh$$

right prism



$$A = 2\pi r^2 + 2\pi r h$$

right cylinder



$$A = 4\pi r^2$$

Sphere

## Review...

The centre of a doughnut is removed and formed to make a sphere of dough with diameter 2.5 cm. A batch of these spheres is to be covered in a sugar glaze. There is enough glaze to cover an area of  $4710 \text{ cm}^2$ . How many spheres can be glazed?



15. 239 spheres



$$\begin{aligned}
 A &= 4\pi r^2 \\
 &= 4\pi (1.25)^2 \\
 &= 19.63 \text{ cm}^2
 \end{aligned}$$

$$\frac{4710}{19.63} = 239.94$$

glazed donuts = 239

To calculate the surface area of a composite object, the first step is to determine the faces that comprise the surface area. Then calculate the sum of the areas of these faces.



### Example 2

### Determining the Surface Area of a Composite Object

Determine the surface area of this composite object to the nearest square foot.

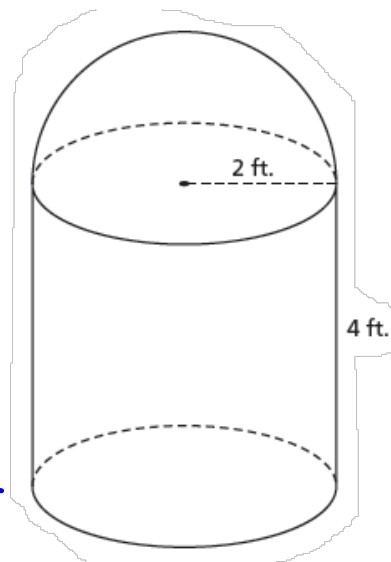


#### SOLUTION

(Erase to reveal)

The surface area of the composite object is approximately 88 square feet.

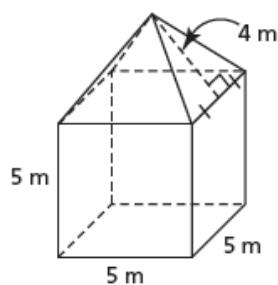
$$\begin{aligned}
 A &= 2\pi r^2 + 2\pi rh \quad \left. \begin{array}{l} + \frac{1}{2} 4\pi r^2 \\ + 2\pi r^2 \end{array} \right\} \\
 &= \pi r^2 + 2\pi rh \\
 &= \pi(2)^2 + 2\pi(2)(4) \quad \left. \begin{array}{l} + 2\pi(2)^2 \\ + 2\pi(2)^2 \end{array} \right\} \\
 &= 4\pi + 16\pi + 8\pi \\
 &= 28\pi \\
 &= 87.96 \text{ ft}^2
 \end{aligned}$$



1.7 Solving Problems Involving Objects

**CHECK YOUR UNDERSTANDING**

2. Determine the surface area of this composite object.



$$\begin{aligned}A &= (5 \times 5) \times 5 + 4 \left( \frac{1}{2} b h \right) \\ &= 125 + 2(5)(4) \\ &= 125 + 40 \\ &= 165 \text{ m}^2\end{aligned}$$



[Answer: 165 m<sup>2</sup>]



## Attachments

---

Worksheet - Surface Area of Prisms and Cylinders.pdf

Worksheet - Surface Area of Pyramids and Cones.pdf