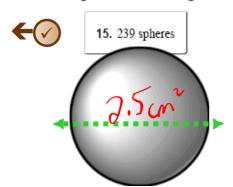# WARM-UP...

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 cm$^2$. How many spheres can be glazed?

15. 239 spheres

2.5 cm$^2$

$$SA_{sphere} = 4\pi r^2$$

$$= 4\pi (1.25)^2$$

$$= 19.6 \ cm^2$$

# of balls $= \dfrac{4710}{19.6}$

$$= 239$$

1.6 Surface Area and Volume of a Sphere

# Determining the Surface Area of a Composite Object

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.
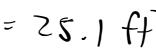
**EXAMPLE #1:** Determine the surface area of this composite object to the nearest square foot.
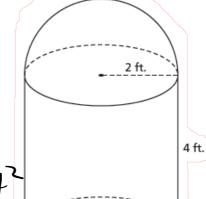
✓ **SOLUTION**
(Erase to reveal)
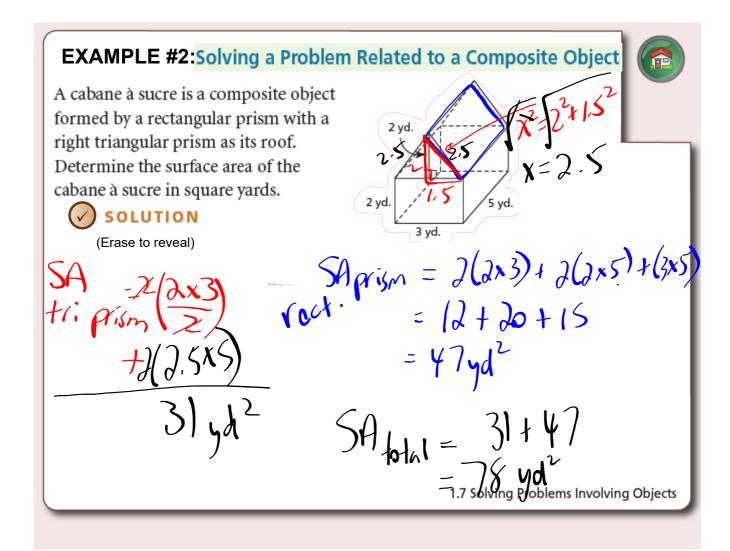
The surface area of the composite o'
approximately 88 square feet.

$$SA_{hemi} = \frac{4\pi r^2}{2}$$

$$2\pi(2)^2$$

$$= 25.1 \ ft^2$$

$$SA_{cylinder} = 2\pi r^2 + 2\pi r h$$

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

$$= 62.8 \ ft^2$$

2 ft.

4 ft.

1.7 Solving Problems Involving Objects

$$SA_{total} = 25.1$$
$$+ 62.8$$
$$\overline{\quad 87.9 \ ft^2}$$

**EXAMPLE #2:** Solving a Problem Related to a Composite Object

A cabane à sucre is a composite object formed by a rectangular prism with a right triangular prism as its roof. Determine the surface area of the cabane à sucre in square yards.

✓ **SOLUTION**

(Erase to reveal)

2 yd.

2.5        2.5

2 yd.        1.5        5 yd.

3 yd.

$\sqrt{x^2} = \sqrt{2^2 + 1.5^2}$

$x = 2.5$

$SA$ tri prism $\dfrac{-x(2\times3)}{2} + 2(2.5\times5)$

_____

$31\ yd^2$

$SA$ rect. prism $= 2(2\times3) + 2(2\times5) + (3\times5)$

$= 12 + 20 + 15$

$= 47\ yd^2$

$SA_{total} = 31 + 47$

$= 78\ yd^2$

1.7 Solving Problems Involving Objects

# TRY THIS ONE...

A tool shed is formed by a rectangular prism with a triangular prism as its roof. Determine the surface area of the tool shed to the nearest square foot.

3 ft.

3

2

5 ft.

6 ft.

4 ft.

$x^2 = 3^2 + 2^2$

$x = \sqrt{3^2 + 2^2}$

$x = 3.6$

$SA_{tri.\ prism} = 2\left(\dfrac{3 \times 4}{2}\right)$

$+ 2(3.6 \times 6)$

[Answer: approximately 155 ft.$^2$]

$SA_{rect.\ prism} = 2(5 \times 6)$

$+ 2(4 \times 5)$

$+ 2(4 \times 6)$

1.7 Solving Problems Involving Objects

# HOMEWORK...

Worksheet - Finding Surface Area of a Composite Object.docx

# Attachments

Worksheet - Finding Surface Area of a Composite Object.docx