Problems with the homework?

11. $A_1 = \pi r s$

$A_2 = \pi r(2s)$

$= 2\pi rs$

$\%\text{ change} = \frac{2\pi rs - \pi rs}{\pi rs} \times 100\%$

$= \frac{\pi rs}{\pi rs} \times 100\%$

$= 1 \times 100\%$

$= 100\%$

#7. a) $A = 32.64 \quad s = 2.81$

$A = \pi r s$

$\frac{\pi r s}{\pi s} = \frac{A}{\pi s}$

$r = \frac{A}{\pi s}$

$= \frac{32.64}{\pi (2.81)}$

$= 3.70\text{cm}$

7. b) $A = \pi rs$

$s = \frac{A}{\pi r}$

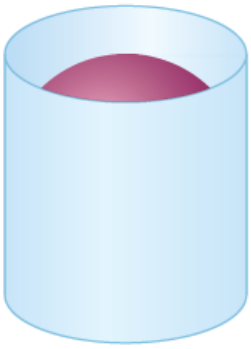
$= \frac{184.82}{\pi (6.75)}$

$= 8.72\text{cm}$

Surface Area of Composite Shapes

The surface area of a sphere is related to the curved surface area of a cylinder that encloses it. ?

?



1.6 Surface Area and Volume of a Sphere

The curved surface area, SA_C, of a cylinder with base radius r and height h is:
$SA_C = 2\pi rh$

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

?

?

1.6 Surface Area and Volume of a Sphere

15. 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?

$SA = 4\pi r^2$

$= 4\pi(1.25)^2$

$= 19.63 cm^2$

$\frac{4710}{19.63} = 239$ timbits

1.6 Surface Area and Volume of a Sphere

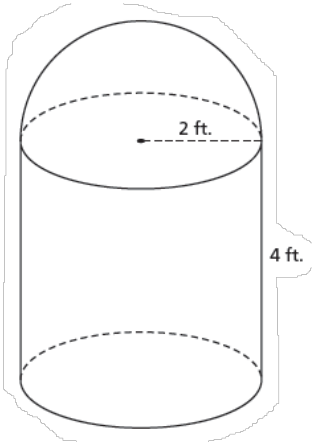
To calculate the surface area of a composite object, the first step is to determine the faces that comprise the surface area. Then calculate the sum of the areas of these faces.

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)



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

$= 3\pi r^2 + 2\pi rh$

$= 3\pi(2)^2 + 2\pi(2)(4)$

$= 12\pi + 16\pi$

$= 28\pi$

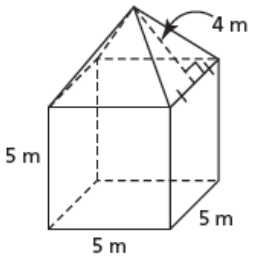
$= 88 ft^2$

1.7 Solving Problems Involving Objects

Homework...

CHECK YOUR UNDERSTANDING

2. Determine the surface area of this composite object.



$A_{box} = A_{side} \times 5$

$= 5 \times 5 \times 5$

$= 125\ m^2$

$A_{top} = \frac{bh}{2} \times 4$

$= \frac{(5)(4)}{2} \times 4$

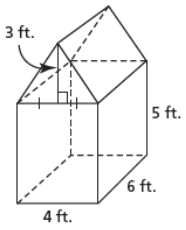
$= 40\ m^2$

$A_{Total} = 125 + 40$

$= 165\ m^2$

CHECK YOUR UNDERSTANDING

3. 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.



$c^2 = a^2 + b^2$

$= 3^2 + 2^2$

$= 9 + 4$

$= 13$

$c = \sqrt{13}$

$= 3.6\ ft$

$A_{box} = A_{bottom} + A_{f/b} + A_{sides}$

$= 4(6) + 2(4)(5) + 2(6)(5)$

$= 24 + 40 + 60$

$= 124\ ft^2$

$A_{triangles} = \frac{(4)(3)}{2} \times 2$

$= 12\ ft^2$

$A_{top\ sides} = (3.6)(6) \times 2$

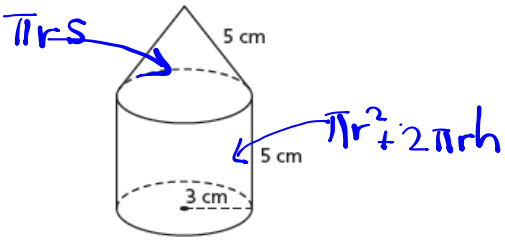
$= 43.2\ ft^2$

$A_{total} = 124 + 12 + 43.2$

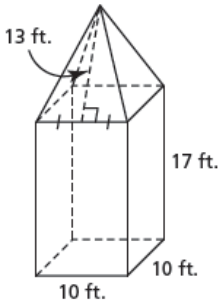
$= 179.2\ ft^2$

3. Determine the surface area of each composite object to the nearest square unit.

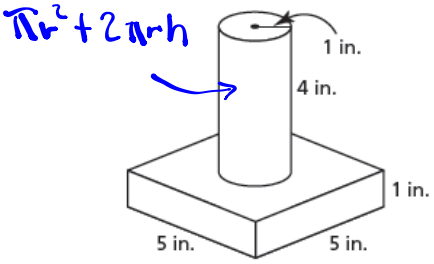
a) right cylinder and right cone



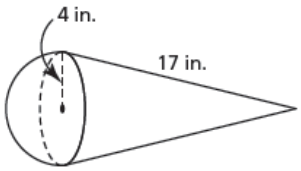
b) right square prism and right square pyramid



c) right square prism and right cylinder

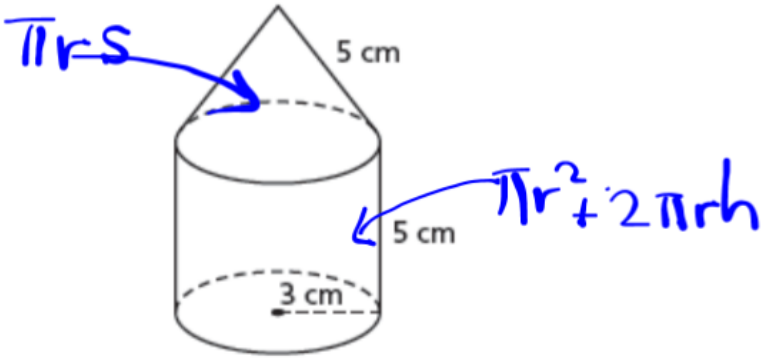


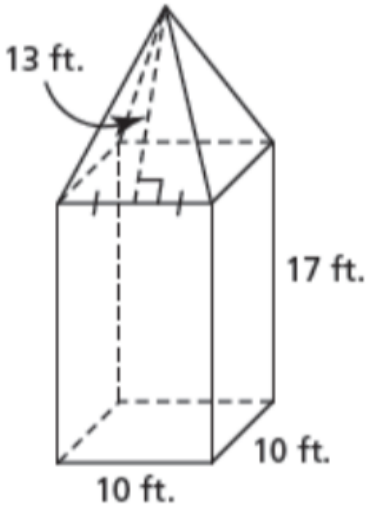
d) right cone and hemisphere



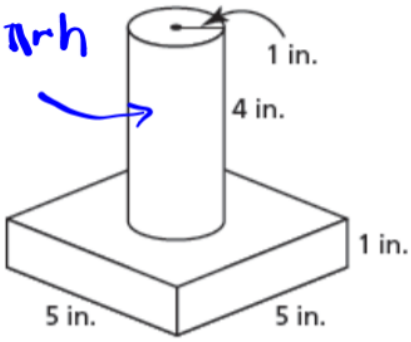
1.7 Solving Problems Involving Objects

$2lw + 2lh + 2wh - \pi r^2$

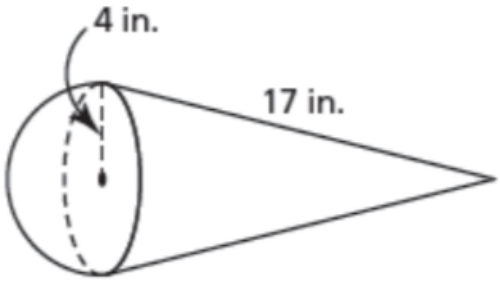




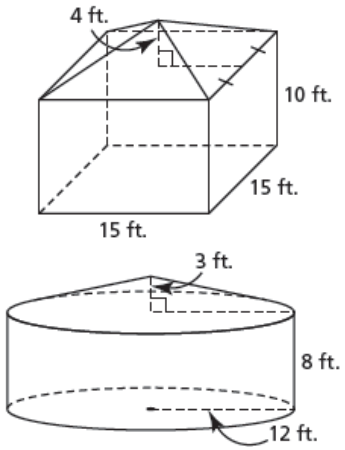
$\pi r^2 + 2\pi rh$



$2lw + 2lh + 2wh - \pi r^2$



9. Here are two different grain storage bins.
a) Which storage bin holds more grain?
b) Each storage bin has a cement base.
The materials for the walls and roof of the square-based bin cost $10.49 per square foot. The materials for the walls and roof of the circular-based bin cost $9.25 per square foot. Which bin is cheaper to build? Justify your answer.



9a) find volume
b) surface area (Note: do not include the bottom)

1.7 Solving Problems Involving Objects