1. Determine the volume of this composite object to the nearest tenth of a cubic centimetre.

$V_{TOT} = V_{cyl} + V_{HS}$

18.0 cm

32.0 cm

hemisphere

cylinder
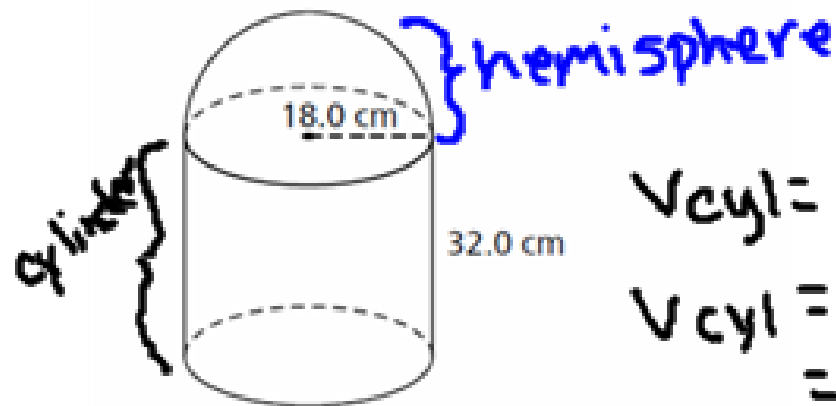
$V_{cyl} = (\text{area of base})h$

$V_{cyl} = \pi r^2 h$

$= \pi (18)^2 (32)$

$V_{cyl} = 32572.03 \ cm^3$

$V_{HS} = \dfrac{2\pi r^3}{3} = \dfrac{2\pi (18.0)^3}{3} = 12\,214.51 \ cm^3$

$V_{TOT} = 32\,572.03 + 12\,214.51 = 44\,786.5 \ cm^3$

SA.

1. Determine the ~~volume~~ of this composite object to the nearest tenth of a ~~cubic~~ centimetre.

square

18.0 cm

32.0 cm

$$SA_{TOT} = SA_{cyl} + SA_{HS}$$

$$SA_{cyl} = 2\pi r^2 + 2\pi rh$$
$$- \pi r^2$$
$$SA_{cyl} = \pi r^2 + 2\pi rh$$

$$SA_{HS} = 3\pi r^2 - \pi r^2 = 2\pi r^2$$
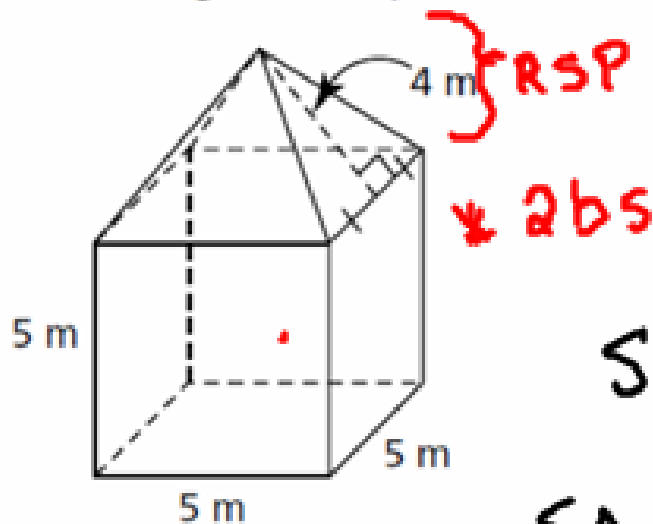
$$SA_{cyl} = \pi(18)^2 + 2\pi(18)(32)$$
$$SA_{cyl} = 4636.99 \text{ cm}^2$$

$$SA_{HS} = 2\pi(18)^2$$
$$+ \quad SA_{HS} = 2035.75 \text{ cm}^2$$

$$S_{TOT} = 6672.7 \text{ cm}^2$$

2. Determine the surface area of
   this composite object.

4 m } RSP

* 2bs

5 m

5 m

5 m

$SA = 5 \square s + 4 \triangle 4$
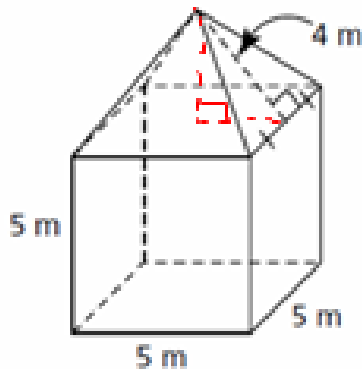
$SA = 5(\ell \cdot w) + 4\left(\frac{bh}{2}\right)$

$SA = 5(5 \cdot 5) + 4\left(\frac{5 \cdot 4}{2}\right)$

$SA = 125 + 40$

$SA = 165 m^2$

2. Determine the ~~surface area~~ volume of this composite object.

4 m

5 m
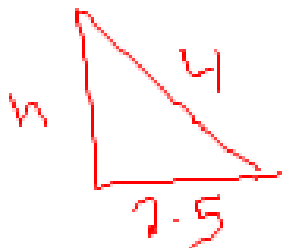
5 m

5 m

$V = V_{prism} + V_{RSP}$

$V = l \cdot w \cdot h + \frac{1}{3}(l \cdot w) \cdot h$

$V = (5 \cdot 5 \cdot 5) + \frac{(5 \cdot 5)(3.122)}{3}$

$V = 125 + 26.02 \ldots$

$V = 151.0 \text{ m}^3$

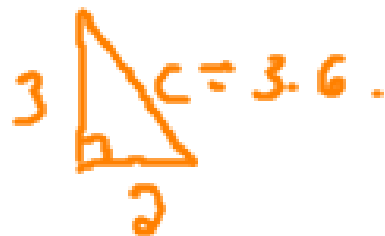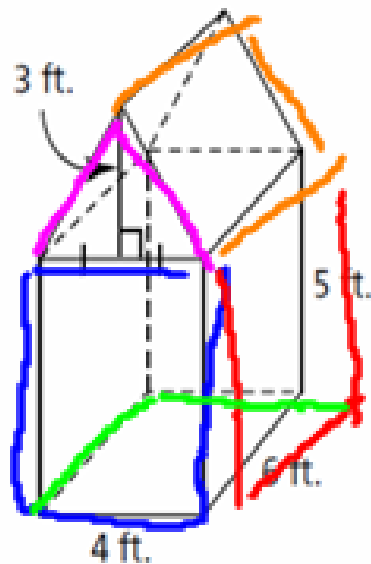$h^2 = c^2 - a^2$

$h^2 = 4^2 - (2.5)^2$

$h^2 = 16 - 6.25$

$h = 3.122$

4

h

2.5

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.

$$SA = 2 \boxed{}\, 5 + 2 \boxed{}\, 5 + \boxed{}\, 6$$

4   6   4

$$+ 2 \,\triangle\, 3 + 2 \boxed{}\, 3.6$$

4   6

3 ft.

5 ft.

6 ft.

4 ft.

$$SA = 2(l \cdot w) + 2(l \cdot w) + lw + 2\left(\frac{bh}{2}\right) + 2(l \cdot w)$$

$$= 2(5 \cdot 4) + 2(6 \cdot 5) + (6 \cdot 4) + (4)(3) + 2(6)(3.6)$$

$$= 40 + 60 + \boxed{24.4} + 12 + 43.2$$

$$3 \, \diagup\!\!\!\diagdown \, c = 3.6.$$
2

$$SA = 179 \text{ ft}^2$$

$$SA = 155 \text{ ft}^2$$

Composite Objects HW

p.59 #3-11, 13