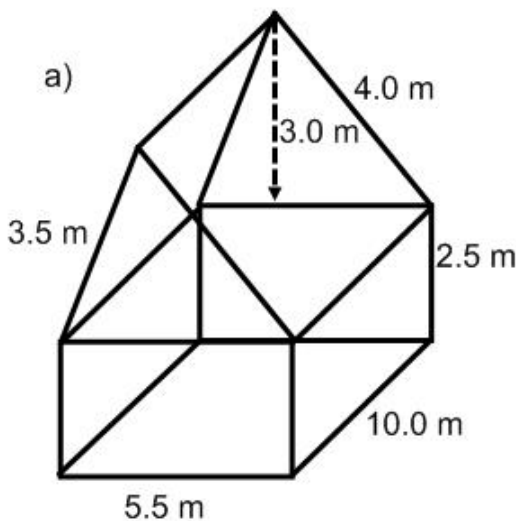


✚ *homework check:* Volume and Surface Area Booklet

✚ *note:* Volume and Surface Area of Composite Figures

Volume and surface area measurements are calculated for three dimensional shapes. Volume is a measure of how much the shape will contain and is measured in cubic units. Surface area is the amount of material required to construct the shape and is measured in square units. To calculate any volume and surface, we rely on both the area and perimeter of the base. It is important to establish the shape the base of any composite figure before finding these measures. This base shape **must be consistent** throughout the entire model.

For example, calculate the volume and surface area of each of the following shapes:



Base Area:

$$A = A_{\text{rectangle}} + A_{\text{triangle}}$$

$$= 5.5(2.5) + \frac{5.5(3.0)}{2}$$

$$= 13.75 + 8.25$$

$$= 22m^2$$

Base Perimeter:

$$P = P_{3 \text{ sides rectangle}} + P_{2 \text{ sides triangle}}$$

$$= (5.5 + 2.5 + 2.5) + (3.5 + 4.0)$$

$$= 10.5 + 7.5$$

$$= 18$$

Volume:

$$V = A_B h$$

$$= 22(10.0)$$

$$= 220m^3$$

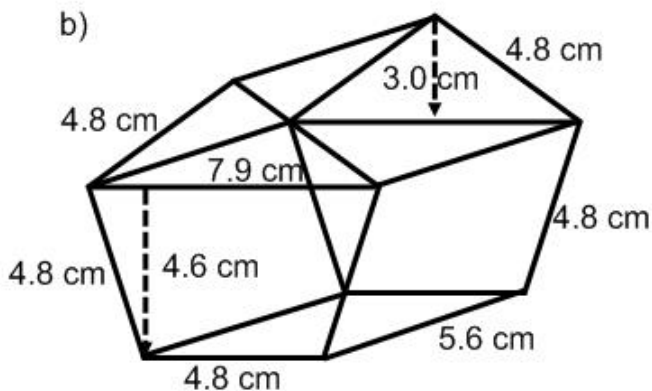
Surface Area:

$$SA = 2A_B + P_B h$$

$$= 2(22) + 18(10.0)$$

$$= 44 + 180$$

$$= 224m^2$$



Base Area:

$$A = A_{\text{trapezoid}} + A_{\text{triangle}}$$

$$= \left(\frac{4.8 + 7.9}{2} \right) (4.6) + \frac{7.9(3.0)}{2}$$

$$= 29.21 + 9.4$$

$$= 38.61cm^2$$

Base Perimeter:

$$P = P_{3 \text{ sides trap}} + P_{2 \text{ sides triangle}}$$

$$= 3(4.8) + 2(4.8)$$

$$= 14.4 + 9.6$$

$$= 24cm$$

Volume:

$$V = A_B h$$

$$= 38.61(5.6)$$

$$= 216.2160cm^3$$

Surface Area:

$$SA = 2A_B + P_B h$$

$$= 2(38.61) + 24(5.6)$$

$$= 77.22 + 134.4$$

$$= 211.62cm^2$$

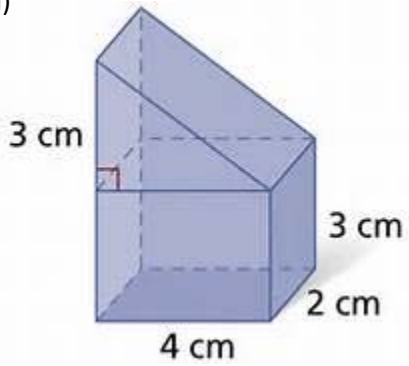
✚ *homework assignment:* Volume and Surface Area Booklet

NAME: _____

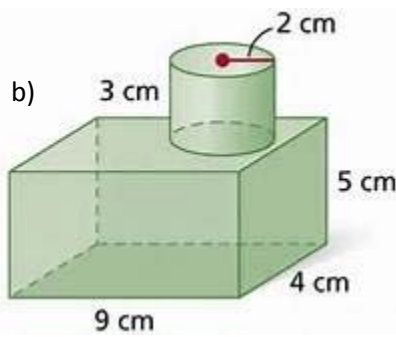
Volume and Surface Area Booklet

Determine the volume and surface area of each composite shape below. Remember that you may have to use Pythagorean Theorem in certain places to find side lengths...

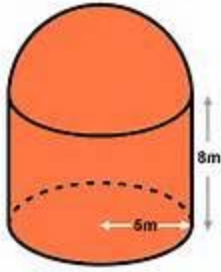
a)



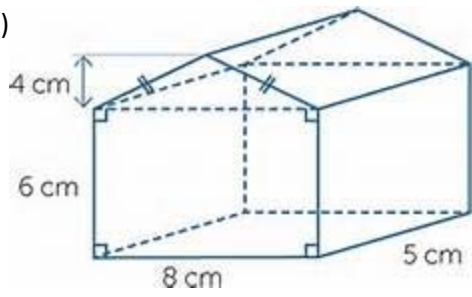
b)



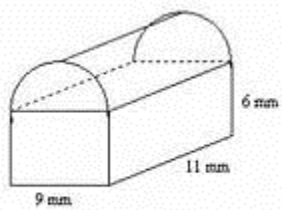
c)



d)



e)



Not drawn to scale

