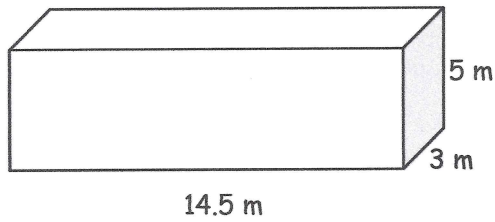


Volume of Prisms and Cylinders Worksheet

1.)



Area of Base:

$$5(3) = 15$$

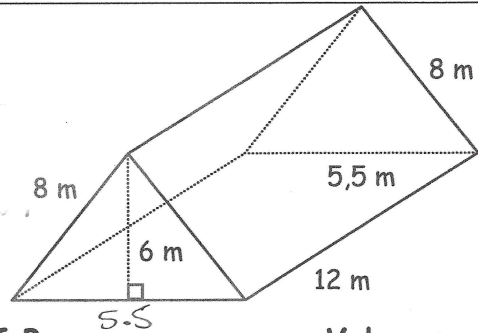
Volume:

$$V = l \times w \times h$$

$$V = 15(14.5)$$

$$V = 217.5 \text{ m}^3$$

2.)



Area of Base:

$$A = \frac{1}{2}(5.5)(6)$$

$$= 16.5 \text{ m}^2$$

Volume:

$$V = l \times w \times h$$

$$V = A_{\text{base}} \times h$$

$$V = 16.5 \cdot 12$$

$$V = 198 \text{ m}^3$$

3.)

$$\frac{12}{2} = 6$$

Area of Base:

$$A = \pi(6)^2$$

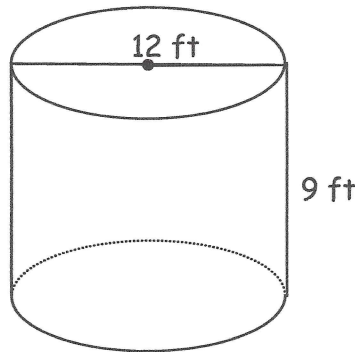
$$= 36\pi \text{ ft}^2$$

Volume:

$$V = A_{\text{base}} \cdot h$$

$$V = 36\pi \cdot 9$$

$$V = 324\pi \approx 1017.88 \text{ ft}^3$$



4.)

Area of Base:

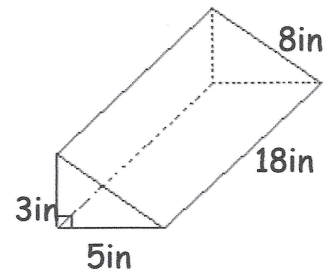
$$A = \frac{1}{2}(3)(5)$$

$$A = 7.5 \text{ in}^2$$

Volume:

$$V = 7.5(18)$$

$$V = 135 \text{ in}^3$$

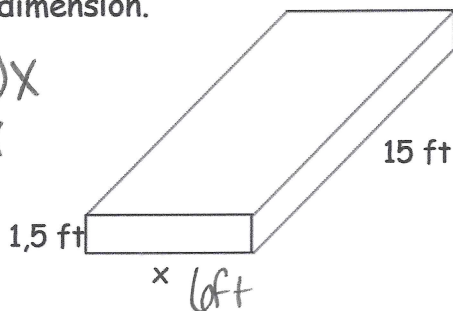


5.) If the volume of the figure below is 135 ft^3 , find the missing dimension.

$$135 = (1.5)(15)x$$

$$135 = 22.5x$$

$$x = 6 \text{ ft}$$

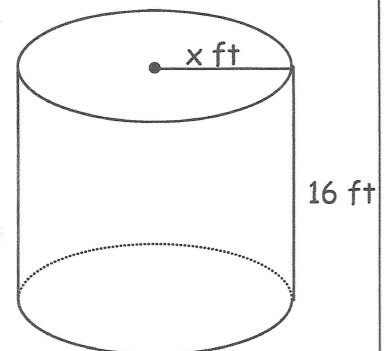


6.) If the volume of the figure below is $4,069.44 \text{ ft}^3$, find the missing dimension.

$$4,069.44 \text{ ft}^3 = \pi x^2 (16)$$

$$\sqrt{x^2} = \sqrt{80.96}$$

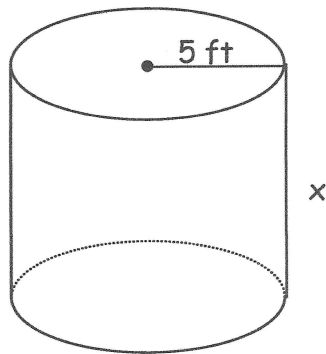
$$x = 8.99 \text{ ft}$$



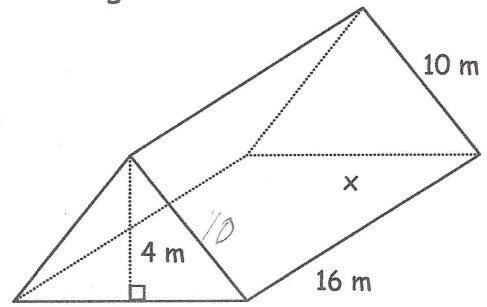
7.) If the volume of the figure below is 902.75ft^3 , find the missing dimension.

$$902.75\text{ft}^3 = 25\pi \cdot x$$

$$x = 11.49\text{ft}$$



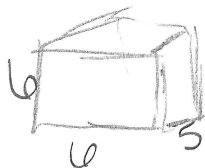
8.) If the volume of the figure below is 224m^3 , find the missing dimension.



$$224\text{m}^3 = \frac{1}{2}(4x) \cdot 16$$

$$x = 7\text{m}$$

9.) Cameron makes a glass cylinder that has a diameter of 6 in. and a height of 5 in. for a friend. He wants to send it to his friend in a box that is $6 \times 6 \times 5$. He wants to put the cylinder in a box and wrap it with packing foam. How much packing foam does Cameron need?



$$V = 3^2\pi \cdot 5$$

$$V = 45\pi = 141.37$$

$$V = 6 \cdot 6 \cdot 5 = 180$$

$$180$$

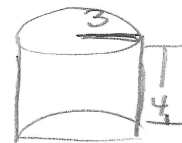
$$- 141.37$$

$$38.63\text{in}$$

10.) The radius of a cylinder is 3 m and the height is 4 m.

a.) What is the volume of the cylinder?

$$V = 3^2\pi \cdot 4 = 9(4)\pi = 36\pi \approx 113.1\text{m}$$



b.) If you double the radius, what is the new volume?

$$r_{\text{new}} = 3(2) = 6 \quad V = 6^2\pi(4) = 144\pi = 452.389$$

c.) How do these two volumes compare? Why do you think this happens?

multiplied by 4. Our formula squares the radius, so we are squaring 2 to get 4.