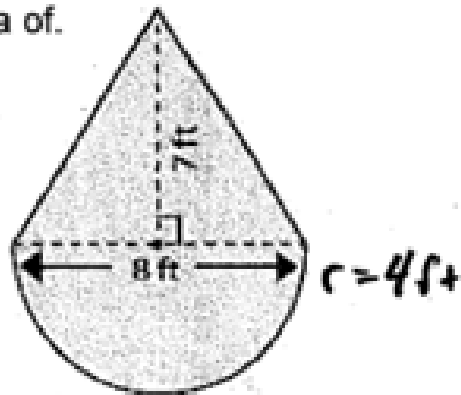


Get our your homework and have it ready to check.

Classwork - Volume of Prisms

.) Find the area of the following compound shapes by breaking them into shapes you know how to find the area of.

A)

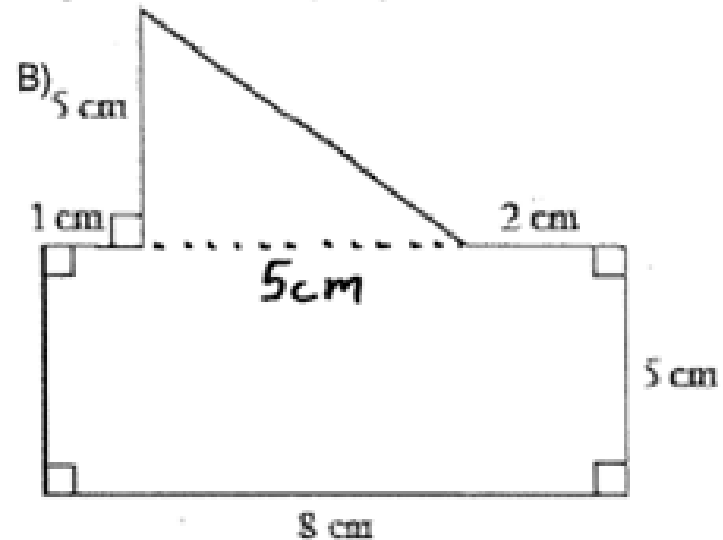


$$A \text{ of } \Delta = \frac{1}{2}(7)(8) = 28 \text{ ft}^2$$

$$\begin{aligned} A \text{ of semicircle} &= 3.14(4^2) \\ &= 50.24 \div 2 \\ A &= 25.12 \text{ ft}^2 \end{aligned}$$

$$28 + 25.12$$

$$\text{Area} = \underline{53.12 \text{ ft}^2}$$



$$\begin{aligned} A \text{ of } \square &= 5 \cdot 8 = 40 \text{ cm}^2 \\ A \text{ of } \Delta &= \frac{1}{2}(5)(5) = 12.5 \text{ cm}^2 \end{aligned}$$

$$40 + 12.5 \text{ cm}^2$$

$$\text{Area} = \underline{52.5 \text{ cm}^2}$$

) The swimming pool at the right is a rectangle with a semicircle at one end. What are the area and perimeter of the pool?

$$A \text{ of } \square = 50 \cdot 24 = 1200 \text{ ft}^2$$

$$A \text{ of semicircle} = 3.14(12^2) = 452.16$$

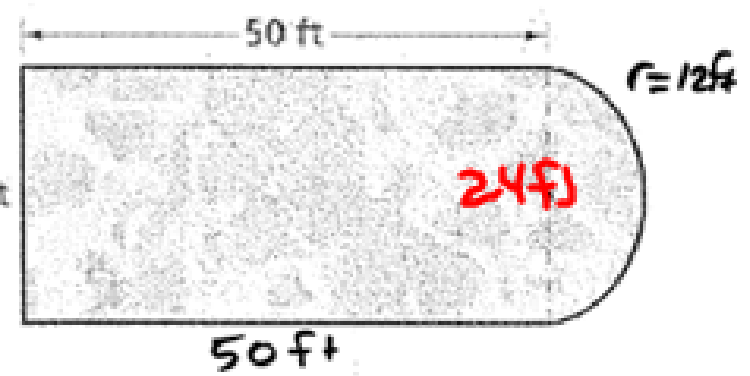
$$452.16 \div 2 = 226.08 \text{ ft}^2$$

$$C \text{ of semi circle}$$

$$C = 3.14(24) = 75.36 \text{ ft}$$

$$75.36 \div 2 = 37.68 \text{ ft}$$

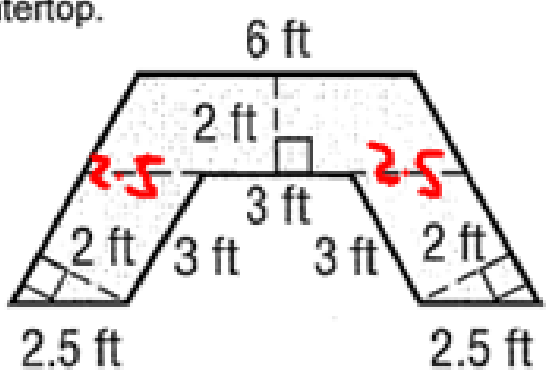
$$37.68 + 50 + 24 + 50$$



$$1200 + 226.08$$

Area = 1426.08 ft² Perimeter = 161.68 ft

3) Wally is planning to install a new countertop in his kitchen, as shown in the figure. Find the area of the countertop.



$$A \text{ of Trapezoid} = \frac{1}{2}(6+8) \cdot 2 = 14 \text{ ft}^2$$

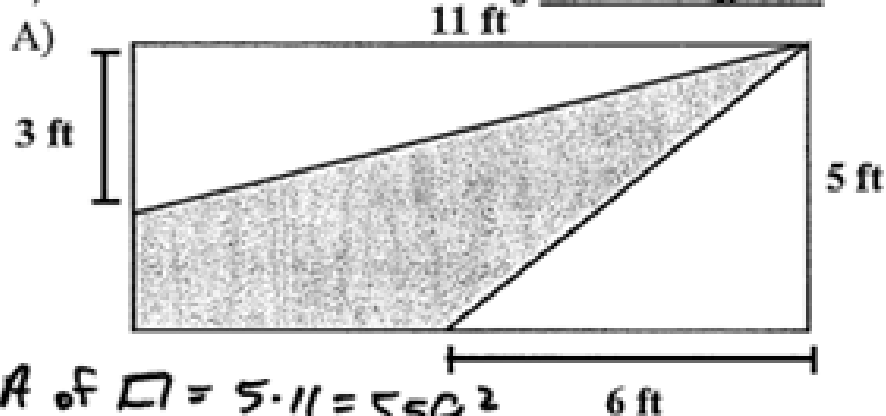
$$A \text{ of parallelogram} = 2 \cdot 3 = 6 \text{ ft}^2$$

$$6 \cdot 2 = 12 \text{ ft}^2$$

$$14 + 12 = 26$$

Area = 26 ft²

4) Find the area of the following shaded regions.

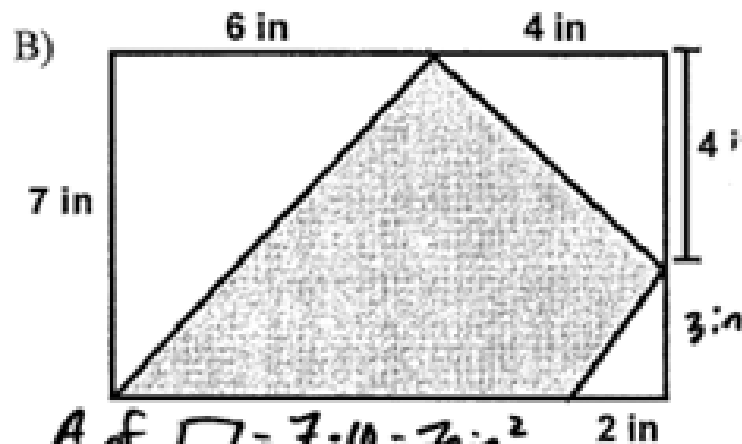


$$A \text{ of } \square = 5 \cdot 11 = 55 \text{ ft}^2$$

$$A \text{ of } \triangle = \frac{1}{2}(3)(11) = 16.5 \text{ ft}^2 \quad A = 55 - 16.5 - 15$$

$$A \text{ of } \triangle = \frac{1}{2}(6)(5) = 15 \text{ ft}^2 \quad = 23.5 \text{ ft}^2$$

Shaded Area = 23.5 ft²



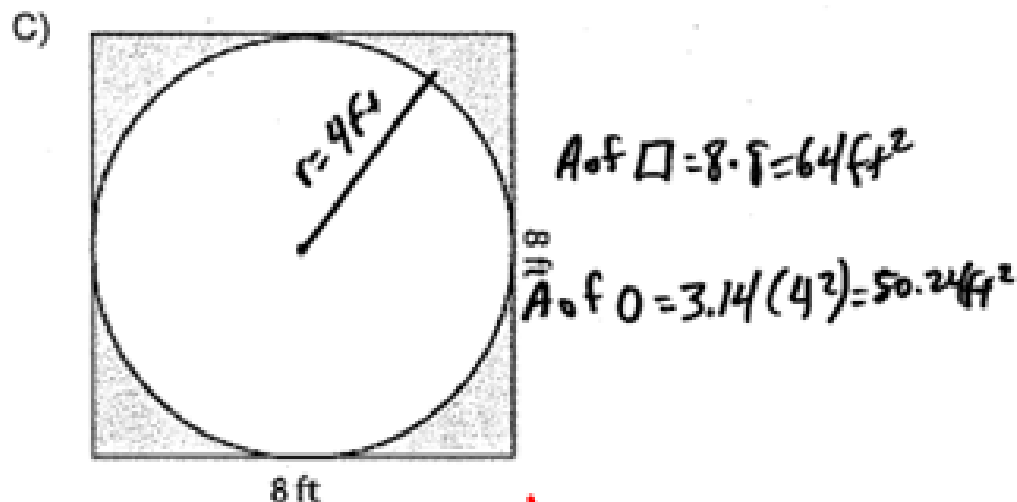
$$A \text{ of } \square = 7 \cdot 10 = 70 \text{ in}^2$$

$$A \text{ of } \triangle = \frac{1}{2}(7)(6) = 21 \text{ in}^2 \quad A = 70 - 21 - 8 - 3$$

$$A \text{ of } \triangle = \frac{1}{2}(4)(4) = 8 \text{ in}^2 \quad = 38 \text{ in}^2$$

$$A \text{ of } \triangle = \frac{1}{2}(3)(2) = 3 \text{ in}^2$$

Shaded Area = 38 in²

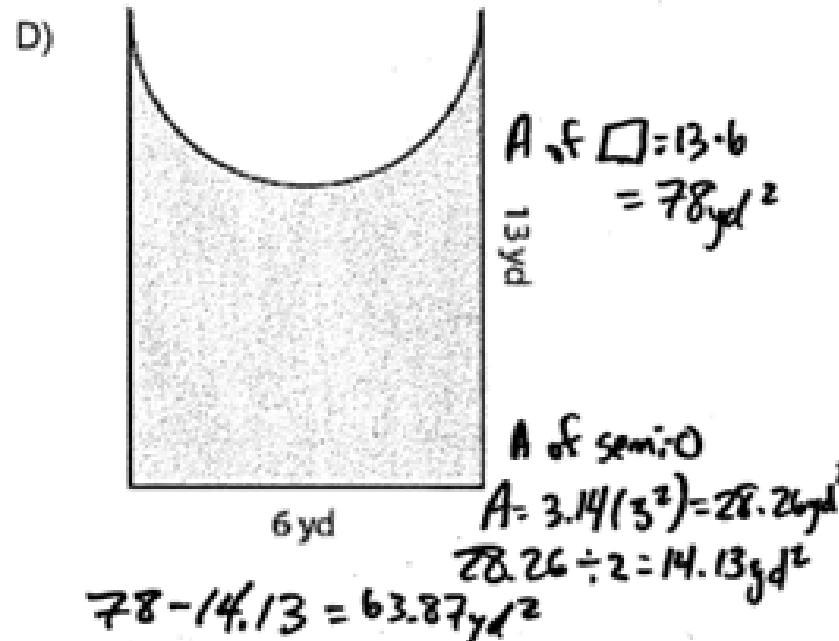


$$A \text{ of } \square = 8 \cdot 8 = 64 \text{ ft}^2$$

$$A \text{ of } \bigcirc = 3.14(4^2) = 50.24 \text{ ft}^2$$

$$A = 64 - 50.24 = 13.76 \text{ ft}^2$$

Shaded Area = 13.76 ft²



$$A \text{ of } \square = 13 \cdot 6 = 78 \text{ yd}^2$$

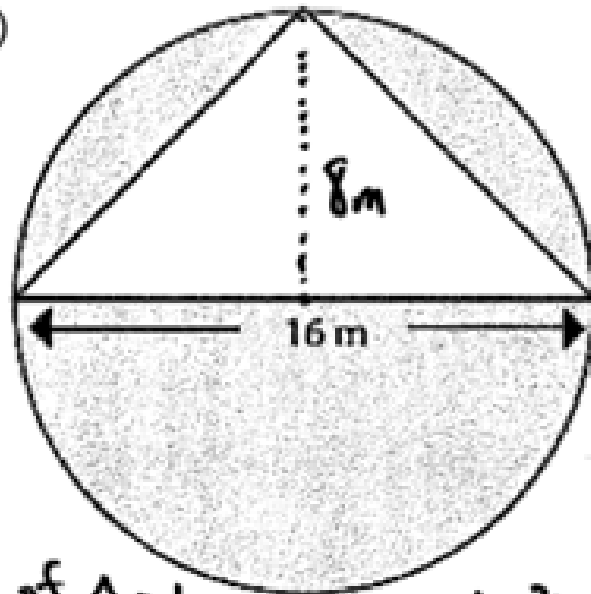
$$A \text{ of semi-}\bigcirc = 3.14(3^2) = 28.26 \text{ yd}^2$$

$$28.26 \div 2 = 14.13 \text{ yd}^2$$

$$78 - 14.13 = 63.87 \text{ yd}^2$$

Shaded Area = 63.87 yd²

F)



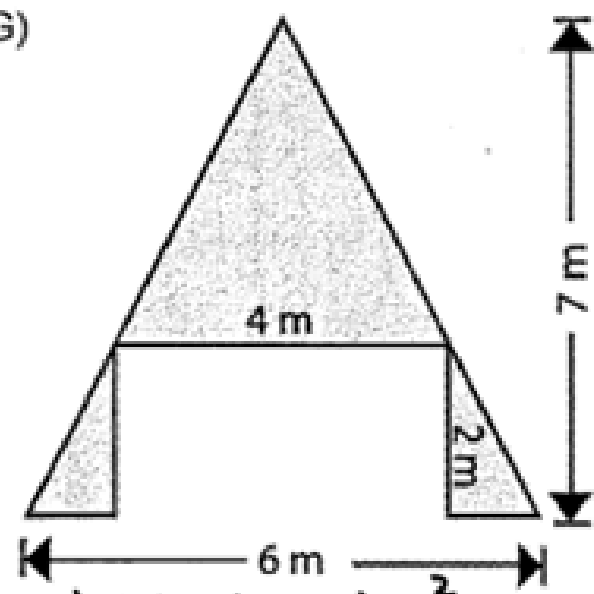
$$A \text{ of } \Delta = \frac{1}{2}(16)(8) = 64 \text{ m}^2$$

$$A \text{ of } O = 3.14(8^2) = 200.96 \text{ m}^2$$

$$200.96 - 64 = 136.96 \text{ m}^2$$

$$\text{Shaded Area} = \underline{136.96 \text{ m}^2}$$

G)



$$A \text{ of } \Delta = \frac{1}{2}(6)(7) = 21 \text{ m}^2$$

$$A \text{ of } \square = 2(4) = 8 \text{ m}^2$$

$$21 - 8 = 13 \text{ m}^2$$

$$\text{Shaded Area} = \underline{13 \text{ m}^2}$$

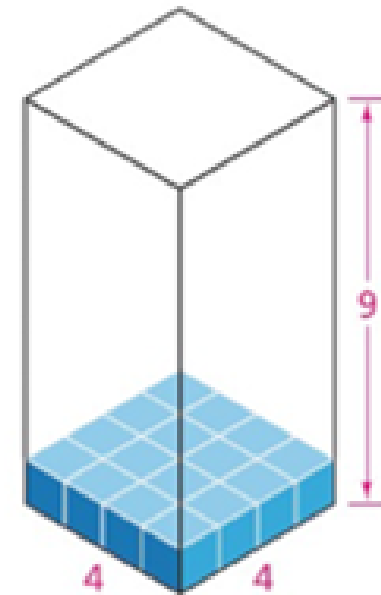
Finding the Volume of ALL Prisms

Volume = Area of the Base · Height of the Prism

Formula for Volume of a Prism $\rightarrow V = Bh$

$B \rightarrow$ Area of the base $h \rightarrow$ height of the prism

The height of the prism must make a right angle with the base of the prism. The height of the prism is the distance between the two identical bases of the prism. The height can be vertical and horizontal.



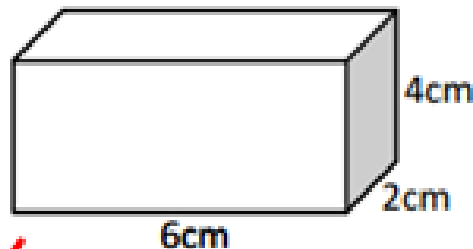
Volume of a Rectangular Prism

Volume = length · width · height OR $V = lwh$

******THIS FORMULA ONLY WORKS ON RECTANGULAR PRISMS!**

1) Find the volume of the following rectangular prisms. SHOW WORK AND LABEL

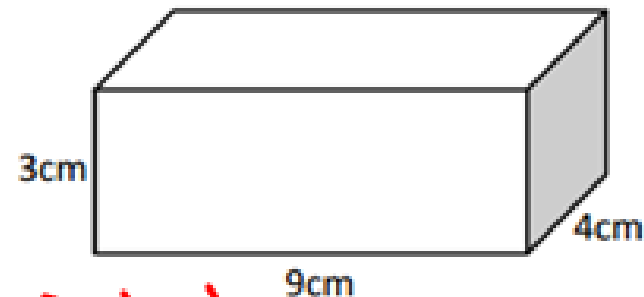
A)



$$V = 6(2)(4)$$
$$48 \text{ cm}^3$$

Volume = _____

B)



$$V = 3(9)(4)$$
$$108 \text{ cm}^3$$

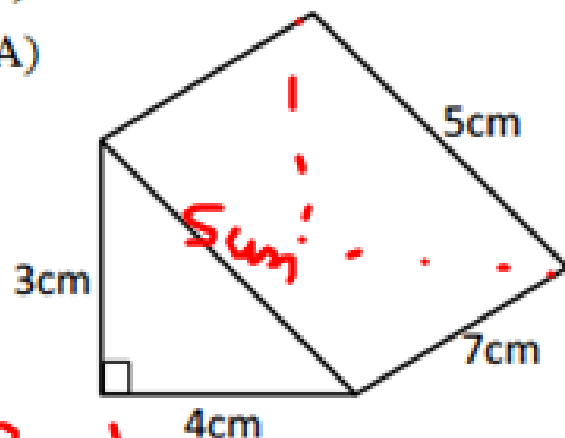
Volume = _____

Volume of a Triangular Prism

You have to use the formula \rightarrow *Volume = Area of the Base \cdot Height of the Prism* OR $V = Bh$

2) Find the volume of the following triangular prisms. SHOW WORK AND LABEL

A)

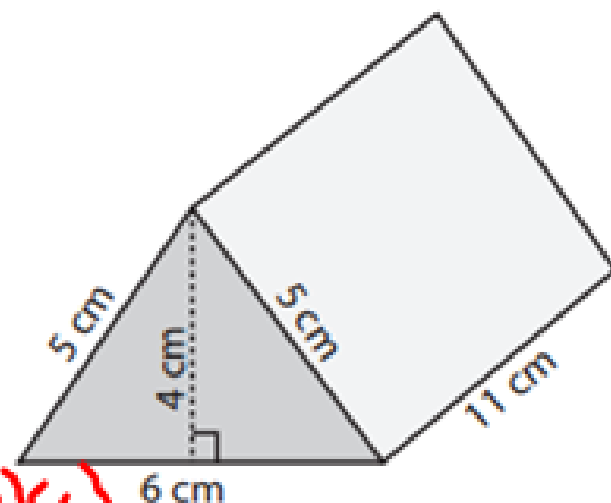


$$B = \frac{1}{2}(3)(4) = 6 \text{ cm}^2$$

$$V = (6 \text{ cm}^2)(7 \text{ cm})$$

$$\text{Volume} = \underline{42 \text{ cm}^3}$$

B)



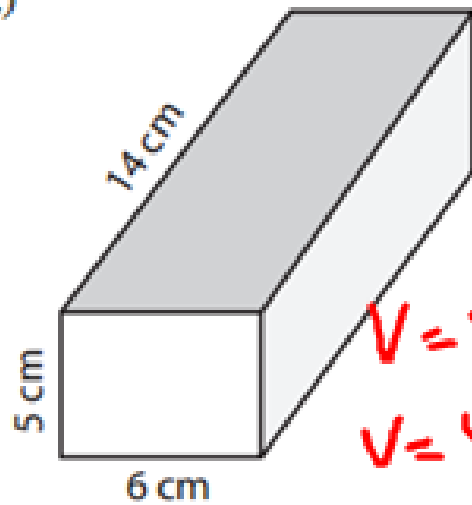
$$B = \frac{1}{2}(4)(6) = 12 \text{ cm}^2$$

$$V = 12(11) = 132$$

$$\text{Volume} = \underline{132 \text{ cm}^3}$$

3) Find the volume of the following prisms. Make sure you use the correct formula. SHOW WORK AND LABEL

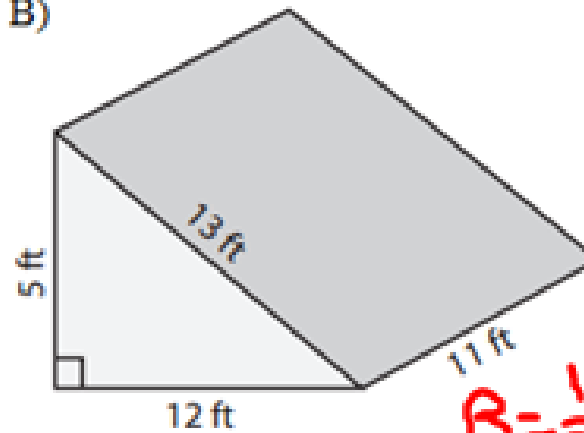
A)



$$V = 5 \cdot 6 \cdot 14$$
$$V = 420 \text{ cm}^3$$

Volume = 420 cm³

B)

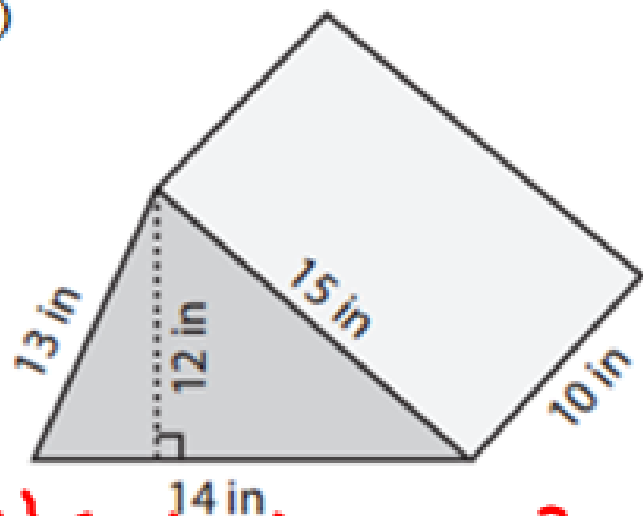


$$B = \frac{1}{2}(5)(12)$$
$$B = 30 \text{ ft}^2$$

Volume = 330 ft³

$$V = 30(11) = 330 \text{ ft}^3$$

C)

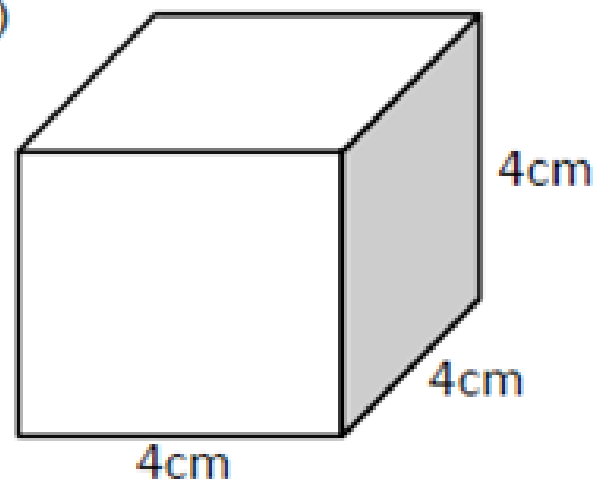


$$B = \frac{1}{2}(14)(12) = 84 \text{ in}^2$$

$$V = 84(10) = 840 \text{ in}^3$$

Volume = 840 in³

D)



$$V = 4 \cdot 4 \cdot 4 = 64 \text{ cm}^3$$

Volume = 64 cm³

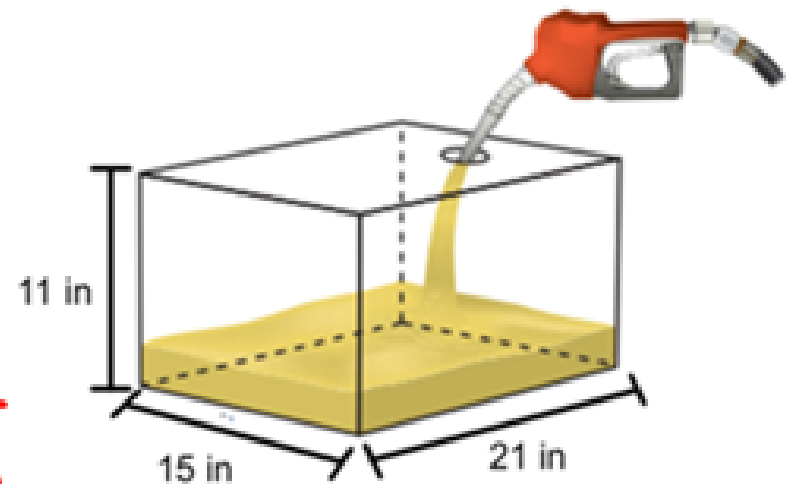
4) Use the gas tank to the right to answer the following questions. SHOW WORK AND LABEL

A) How many cubic inches of gas fit into the tank?

$$V = 11 \cdot 15 \cdot 21 = 3465 \text{ in}^3$$

B) Using the ratio ($1 \text{ gal} = 231 \text{ in}^3$) find out how many gallons of gas this tank will hold? You'll have to set up a proportion.

$$\frac{1 \text{ gal}}{231 \text{ in}^3} = \frac{x}{3465 \text{ in}^3}$$
$$\frac{3465}{231} = \frac{231x}{231}$$
$$15 \text{ gal} = x$$



C) Gas cost \$2.19 per gallon in New Haven right now. How much does it cost to fill up this tank if it is completely empty?

$$15 \text{ gal} \cdot \$2.19 = \$32.85$$