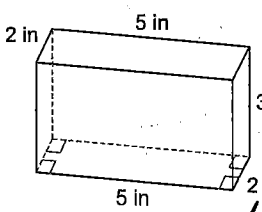


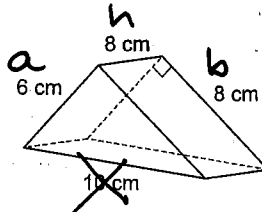
Assignment 3.2 Volume

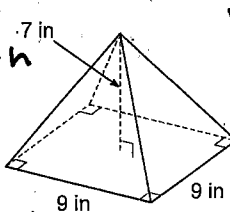
Name _____

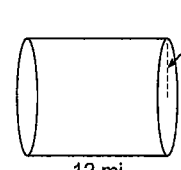
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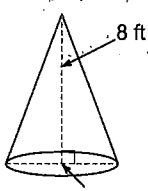
Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

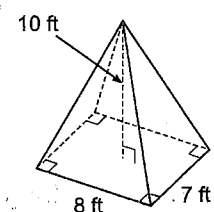
1)  $V = lwh$
 $V = 5 \cdot 2 \cdot 3$
 $V = 30 \text{ in}^3$

2)  $V = \frac{ab}{2}h$
 $V = \frac{6 \cdot 8}{2} \cdot 8$
 $V = 48 \cdot 8$
 $V = 24 \cdot 8$
 $V = 192 \text{ cm}^3$
 DON'T USE HYPOTENUSE!

3)  $V = \frac{b^2h}{3}$
 $V = \frac{9^2 \cdot 7}{3}$
 $V = \frac{81 \cdot 7}{3}$
 $V = \frac{567}{3}$
 $V = 189 \text{ in}^3$

4)  $V = \pi r^2h$
 $V = \pi (5)^2 (12)$
 $V = \pi \cdot 25 \cdot 12$
 $V = 942.48 \text{ mi}^3$

5)  $V = \frac{\pi r^2h}{3}$
 $V = \frac{\pi (3)^2 (8)}{3}$
 $D = 6 \text{ ft}$
 $r = 3 \text{ ft}$
 $V = \frac{226.19}{3}$
 $V = 75.4 \text{ ft}^3$

6)  $V = \frac{lwh}{3}$
 $V = \frac{(7 \cdot 8) \cdot (10)}{3}$
 $V = \frac{560}{3}$
 $V = 186.67 \text{ ft}^3$

7) Convert 10 cubic yards into cubic feet.

$$10 \text{ yd}^3 \times \frac{3^3 \text{ ft}^3}{1^3 \text{ yd}^3}$$

$$10 \times 3^3$$

$$10 \times 27$$

$$\boxed{270 \text{ ft}^3}$$

9) Convert 70 cubic inches into cubic cm.

$$70 \text{ in}^3 \times \frac{2.54^3 \text{ cm}^3}{1^3 \text{ in}^3}$$

$$70 \times 16.39$$

$$\boxed{1147.09 \text{ cm}^3}$$

11) Tile costs \$2.89 per square foot. Determine the cost of 6 square yards of tile.

$$6 \text{ yd}^2 \times \frac{3^2 \text{ ft}^2}{1^2 \text{ yd}^2} = 6 \times 9 = 54 \text{ sqft}$$

$$\$2.89 \times 54 = \boxed{\$156.06}$$

13) Convert 120km/h into metres per second.

$$\frac{120 \text{ km}}{1 \text{ h}} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ h}}{60 \text{ min}} \times \frac{1 \text{ min}}{60 \text{ s}}$$

$$\frac{120000}{3600} = \boxed{33.33 \text{ m/s}}$$

8) Convert 5 cubic km into cubic miles.

$$5 \text{ km}^3 \times \frac{1^3 \text{ mi}^3}{1.609^3 \text{ km}^3}$$

$$\frac{5}{4.166}$$

$$\boxed{1.20 \text{ mi}^3}$$

10) Convert 14 000 000 cubic cm into cubic yards.

$$14000000 \text{ cm}^3 \times \frac{1^3 \text{ m}^3}{100^3 \text{ cm}^3} \times \frac{1^3 \text{ yd}^3}{.9144^3 \text{ m}^3}$$

$$\frac{14000000}{1000000 \times 0.765}$$

$$\boxed{18.31 \text{ yd}^3}$$

12) Insulation costs \$12.49 per cubic foot. Determine the cost of 20m³.

$$20 \text{ m}^3 \times \frac{1^3 \text{ yd}^3}{.9144^3 \text{ m}^3} \times \frac{3^3 \text{ ft}^3}{1^3 \text{ yd}^3}$$

$$\frac{20 \times 27}{0.765} = 706.29 \text{ ft}^3$$

$$\times \$12.49$$

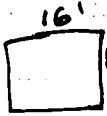
$$\boxed{\$8821.60}$$

14) Convert \$32.69 per square metre into cost per square foot.

$$\frac{32.69}{1 \text{ m}^2} \times \frac{.3048^2 \text{ m}^2}{1^2 \text{ ft}^2} = \boxed{\$3.04/\text{ft}^2}$$

15) Jimmy is tiling a rectangular floor with tiles that cover $0.5m^2$. The floor is $16' \times 10'$.

a. Determine the area of the floor in square feet.



$$A = lw$$

$$A = 16 \cdot 10$$

$$A = 160 \text{ ft}^2$$

b. Convert the area of the floor into square metres.

$$160 \text{ ft}^2 \times \frac{.3048^2 \text{ m}^2}{1^2 \text{ ft}^2} = 14.86 \text{ m}^2$$

c. Each tile covers $0.5m^2$. How many tiles does he need?

$$\frac{14.86}{0.5} = 29.73$$

30 TILES


d. Each tile costs \$1.99. Determine the total cost.

$$\begin{array}{r} 30 \\ \times 1.99 \\ \hline \end{array}$$

\$59.70

16) Jimmy needs to paint 5 cylindrical tanks. They have a height of 6' and a diameter of 4'.

a. Determine the surface area of each tank.



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

$$SA = 2\pi(2)^2 + 2\pi(2)(6)$$

$$SA = 25.13 + 75.398 = 100.53 \text{ ft}^2$$

b. he is going to paint all 5 tanks with 2 coats. Determine the total surface area he must paint.

$$SA_{CAN} \times 5 \times 2 \Rightarrow 100.53 \times 5 \times 2 = 1005.31 \text{ sqft}$$

c. A can of paint covers 200 sq feet. How many cans will he need to paint all 5 tanks with 2 coats of paint?

$$\frac{\text{TOTAL AREA}}{\text{CAN AREA}} = \frac{1005.31}{200} = 5.03$$

6 CANS

THOUGH I
BET I COULD
STRETCH THAT
EXTRA 0.03 OUT
OF 5 CANS.

d. Each can costs \$26.79. Determine the cost of the paint.


$$\begin{array}{r} 26.79 \\ \times 6 \\ \hline \end{array}$$

\$160.74

THAT IS CHEAP PAINT.
GOOD PAINT IS AROUND
\$60/CAN.

17) A cone shaped teepee has a diameter of 12' and a height of 8'.

a. determine the volume of the teepee in cubic feet.



$$D = 12' (r = 6') \quad V = \frac{\pi r^2 h}{3} = \frac{\pi (6')^2 (8)}{3} = \frac{\pi (36)(8)}{3} = \frac{904.78}{3} = \boxed{301.59 \text{ ft}^3}$$

b. convert the volume into cubic metres.

$$301.59 \text{ ft}^3 \times \frac{.3048^3 \text{ m}^3}{1^3 \text{ ft}^3} = 301.59 \times 0.0283 = \boxed{8.54 \text{ m}^3}$$

c. you want to fill 8 teepees with laughing gas. Each can fills 1.5 m^3 of air space. How many cans are needed?

$$\frac{8.54}{1.5} \rightarrow 5.69 \xrightarrow{\text{Sweet!!}} \times 8 = 45.55 = \boxed{46 \text{ CANS}}$$

d. each can costs \$24.99. Determine the cost to fill 8 teepees with laughing gas.

$$\begin{array}{r} 46 \\ \times 24.99 \\ \hline \end{array}$$

$$\boxed{\$1149.54}$$