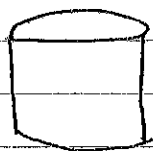


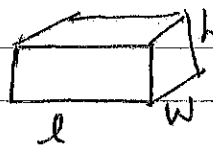
14.1 Math 11 AW - notes

Volume - area shape x height
 - if sides are slanted $\div 3$



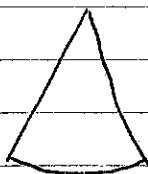
$$V = \pi r^2 \times h$$

↑
 area of
 circle
 on bottom



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

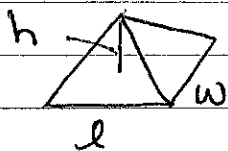
↑
 area of
 bottom



$$V = (\pi r^2 \times h) \div 3 \leftarrow \text{sides are slanted}$$

so $\div 3$.

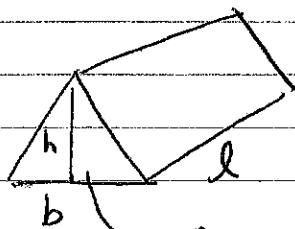
↑
 area of
 circle



$$V = ((l \times w) \times h) \div 3 \leftarrow \text{sides are slanted}$$

slanted so $\div 3$

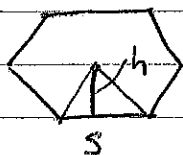
↑
 area of
 bottom



$$V = \frac{b \times h}{2} \times l$$

even though
 it is not on the
 bottom - the shape
 is a triangle through out
 the entire shape
 - treat it like the bottom

To find the area of a polygon

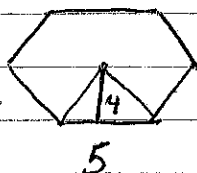


① Use the height & side to make a triangle

② find the area of that triangle

③ multiply answer by number of sides

ex



$$\text{Area}_{\Delta} = \frac{4 \times 5}{2} = 10$$

There are 6 sides:

$$6 \times 10 = 60$$

$$\text{Area} = 60$$

To find volume - just multiply by depth

$d = 2$



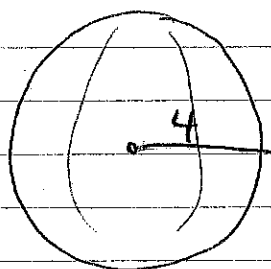
$$A = 60$$

$$V = 60 \times 2 \\ = 120$$

* remember if sides are slanted $\div 3$

4.2 Volume: Sphere

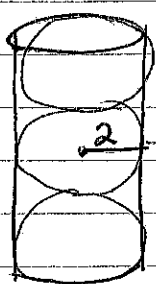
$$V = \frac{4\pi r^3}{3}$$



$$V = \frac{4\pi(4)(4)(4)}{3} \\ = \frac{804.25}{3} \\ = 268.09$$

$$r=2$$

$$d=4$$



To find Air in container:

$V_{\text{container}} \Rightarrow r$ of ball is r of container
 h of container is $3 \times d$ of ball

$$\text{So } \Rightarrow V = \pi r^2 \times h \qquad h = 4 \times 3 = 12$$

$$= \pi (2)(2) \times 12$$

$$= 150.8$$

$$V_{\text{balls}} \Rightarrow 3 \text{ balls} \times \frac{4\pi r^3}{3}$$

$$= 3 \times \frac{4\pi (2)(2)(2)}{3}$$

$$= 3 \times \frac{100.53}{3} \qquad = 3 \times 33.5$$

$$= 100.5$$

$$\text{Air} = V_{\text{container}} - V_{\text{balls}}$$

$$= 150.8 - 100.5$$

$$= 50.3$$

4.3] Volume of Composite Objects

Find the volume of each part

- add if they are combined

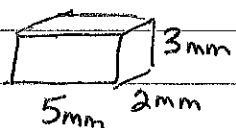
- subtract if there is a hole or part missing

4.8 Math 11AW - notesCapacity - volume with different units.

$$1 \text{ cm}^3 = 1 \text{ mL}$$

$$1 \text{ cu in} = 0.577 \text{ fl oz}$$

* Convert to cm or inches before you find the volume.

ex

Convert to cm

$$5 \text{ mm} = 0.5 \text{ cm}$$

$$2 \text{ mm} = 0.2 \text{ cm}$$

$$3 \text{ mm} = 0.3 \text{ cm}$$

Now find volume

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

$$= 0.5 \times 0.2 \times 0.3$$

$$= 0.03 \text{ cm}^3$$

$$\Rightarrow \begin{array}{l} \text{Capacity} \\ 1 \text{ cm}^3 = 1 \text{ mL} \\ \therefore 0.03 \text{ mL} \end{array}$$

4.10 Estimating CapacityCommon referents:

4L milk jug ~ 1 gal

1L pop ~ 1 pt

cup = 250ml

garbage can - 20L