

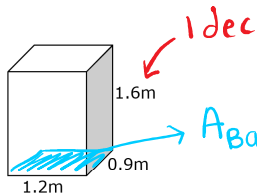
Name: _____ Date: _____ Block: _____
Math 8 Mrs. van der Vossen

Volume Notes

To find the volume of any 3D Object, you find the **AREA** of the **BASE** and **MULTIPLY** it to the **HEIGHT**.

1. Determine the volume of the following:

a.



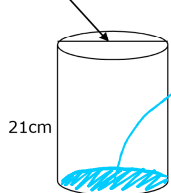
$$A_{\text{Base}} = LW = (1.2\text{m})(0.9\text{m})$$

$$A = 1.08\text{m}^2 \times \text{height}$$

$$\text{VOL} = 1.08\text{m}^2 (1.6\text{m}) = 1.728 = \boxed{1.7\text{m}^3}$$

b.

$$d = 16\text{cm} \div 2 = 8$$

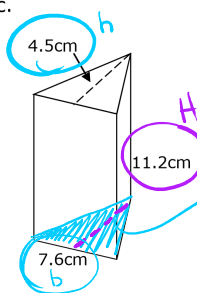


$$A_{\text{Base}} = \pi r^2 = (3.14)(8)(8)$$

$$A = 200.96\text{cm}^2$$

$$\text{VOL} = 200.96\text{cm}^2 (21\text{cm}) = 4220.16\text{cm}^3$$

c.



$$A_{\text{Base}} = 0.5bh = 0.5(7.6\text{cm})(4.5\text{cm})$$

$$A = 17.1\text{cm}^2 \times \text{height}$$

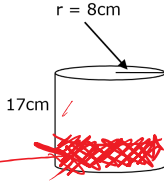
$$\text{VOL} = 17.1\text{cm}^2 \times 11.2\text{cm} = 191.52\text{cm}^3$$

OR

$$V = 0.5bHh$$

$$0.5(7.6\text{cm})(4.5\text{cm})(11.2\text{cm}) = 191.52\text{cm}^3$$

2. Determine the contents of the following if it is only $\frac{3}{8}$ full:

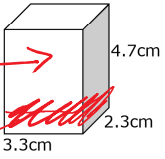


$r = 8\text{cm}$
 17cm
 ?

★ Total VOL:
 $\pi(r^2)(h)$
 $3.14(8\text{cm})(8\text{cm})(17\text{cm})$
 $3,416.32\text{cm}^3$

VOL when $\frac{3}{8}$ Full:
 $3416.32 \times \frac{3}{8}$ $3 \div 8 = 0.375$
 3416.32×0.375
 1281.12cm^3

3. Determine the volume of the empty space in the object below if it is $\frac{1}{6}$ full:



4.7cm
 2.3cm
 3.3cm

Total VOL:
 LWH
 $(3.3\text{cm})(2.3\text{cm})(4.7\text{cm})$
 35.673cm^3

$35.673\text{cm}^3 \times \frac{1}{6}$
 35.673×0.17
 5.9455 filled
 $35.673 - 5.9455$
 VOL missing = 29.72cm^3

$1 \div 6 = 0.1\bar{6}$
 OR!! Missing $\frac{5}{6}$
 $35.673 \times \frac{5}{6}$
 $35.673 \times (5 \div 6)$
 29.72cm^3

4. Determine the height of a triangular prism if it's volume is 230.64m^3 and the area of it's base is 19.22m^2 : base Area ← missing height

$\text{VOL} = 0.5bHh$
 $230.64\text{m}^3 = 19.22\text{m}^2(h)$
 $\div 19.22\text{m}^2$ $\div 19.22\text{m}^2$

$\text{height} = 12\text{m}$

5. If a rectangular prism has a volume of 1080cm^3 and a width of 12cm and a height of 10cm , then what is the length?

$\text{VOL} = LWH$
 $1080\text{cm}^3 = (L)(12\text{cm})(10\text{cm})$ multiply
 $1080\text{cm}^3 = (L)120\text{cm}^2$
 $\div 120\text{cm}^2$ $\div 120\text{cm}^2$
 $L = 9\text{cm}$