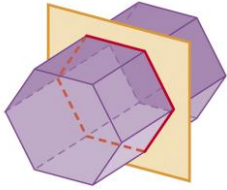


# Volume of Prisms and Cylinders - Notes

key

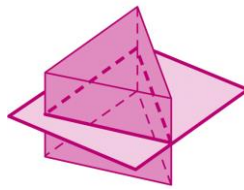
## Part 1: Identifying Cross Sections of 3-D Figures

Directions: Name each prism. Then describe the shape of each cross section.



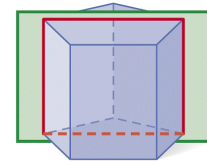
Name: hexagonal prism

Cross Section: hexagon



Name: triangular prism

Cross Section: triangle

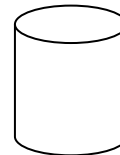
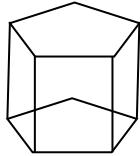
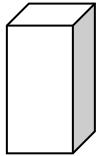
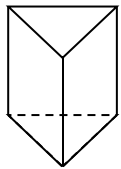


Name: pentagonal prism

Cross Section: rectangle

## Part 2: Find the Volume of Prisms and Cylinders

Volume is: \_\_\_\_\_

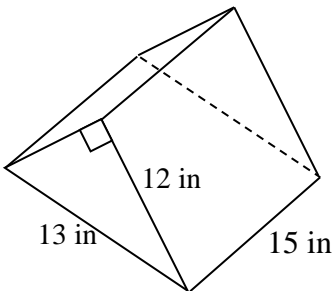


Volume of Prism =  $\frac{B \cdot h}{\text{area of base}}$

Volume of Cylinder =  $\frac{B \cdot h}{\text{area of base (circle)}}$

Directions: Find the volume of each 3-D solid below.

1)

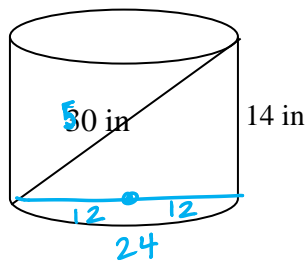


Parallel Cross Section: right  $\Delta$

Area of Base (B):  $\frac{1}{2}(5)(12) = 30$

Volume:  $30 \cdot 15 = 450$

2)

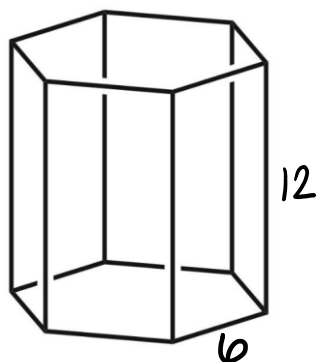


Parallel Cross Section: circle

Area of Base (B):  $144\pi$

Volume:  $144\pi \cdot 14 = 2016\pi$

3)



Parallel Cross Section: hexagon

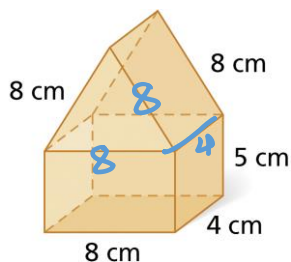
Area of Base (B):  $54\sqrt{3}$

Volume:  $54\sqrt{3} \cdot 12 = 648\sqrt{3}$

$$\frac{6^2\sqrt{3}}{4} \times 6$$

$$\frac{36\sqrt{3}}{4} \times 6 \Rightarrow 9\sqrt{3} \times 6 = 54\sqrt{3}$$

4)

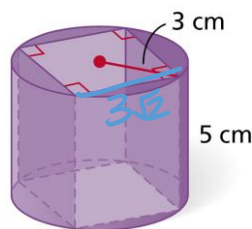


$$\text{Volume}_{\text{Tri}} = \frac{8^2\sqrt{3}}{4} \times 4 = 64\sqrt{3}$$

$$\text{Volume}_{\text{Rect}} = 32 \cdot 5 = 160$$

$$\text{Volume}_{\text{Whole}} = 64\sqrt{3} + 160$$

5)



$$\text{Volume}_{\text{Cyl}} = 9\pi \cdot 5 = 45\pi$$

$$\text{Volume}_{\text{Rect}} = 3\sqrt{2} \cdot 3\sqrt{2} = 9\sqrt{4} = 18$$

$$\text{Volume}_{\text{Whole}} = 45\pi - 18$$