


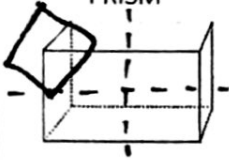

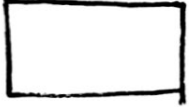




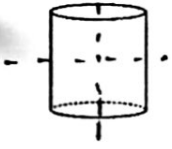


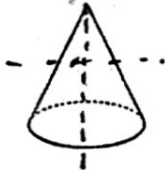


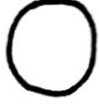


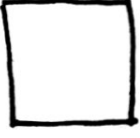


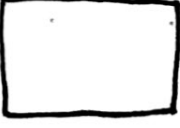


3-D Introduction & Cross Sections

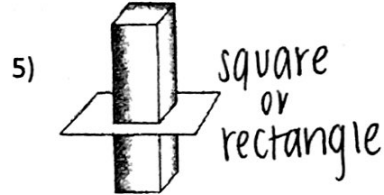
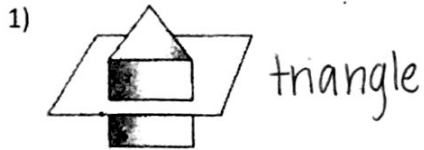
Geometry

Draw the vertical and horizontal cross sections. The base side should always be facing DOWN.

SHAPE	VERTICAL	HORIZONTAL
SPHERE 	 circle	 circle
RECTANGULAR PRISM 	 rectangle	 rectangle
TRIANGULAR PRISM 	 	
CYLINDER 	 rectangle	 circle
CONE 	 	 circle
SQUARE PYRAMID 		 square
RECTANGULAR PYRAMID 		

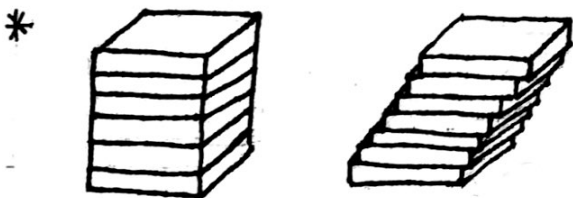
diagonal cut 

Directions: Name the cross section.

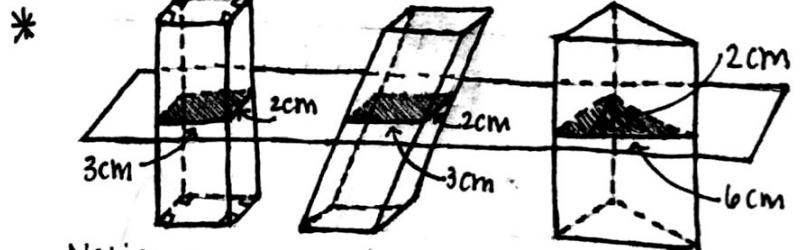


* Cavalieri's Principle:

The volume of two objects of the same height are equal if the area of their corresponding cross sections are equal.



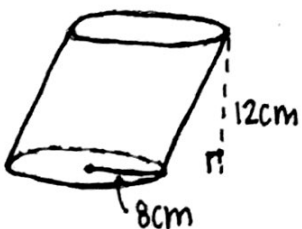
Think of a stack of CDs. They have the same volume.



Notice: These prisms DO NOT have the same shaped cross section; however the areas are the same, therefore the volumes are equal!

* We call a shape that is "leaning" oblique. The same volume formula applies whether the shape is right or oblique.

Ex. Find the volume to the nearest tenth.



$$\begin{aligned}
 V &= Bh \\
 V &= (\pi r^2) h \\
 &= \pi (8)^2 (12) \\
 &= 768\pi \text{ cm}^3 \\
 &\approx 2412.7 \text{ cm}^3
 \end{aligned}$$