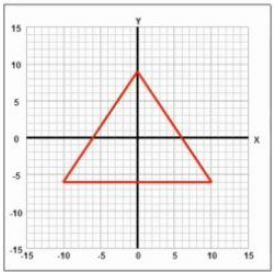
Rotations of 2D Figures Name _____ #____

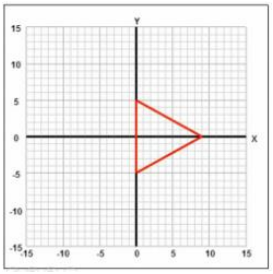
(1) A rotation is the _____ movement of an object around a _____ of rotation.

(2) In three-dimensional space, objects rotate around an imaginary line called _____.

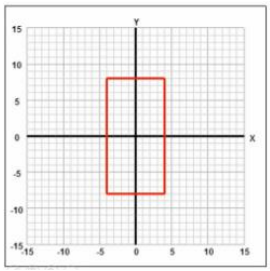
(3) When you rotate a triangle around an axis that bisects the triangle through a vertex, a _____ is created.



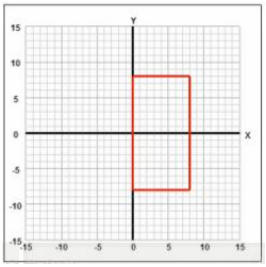
(4) When you rotate a triangle around an axis that is along an edge, the edge along the axis becomes the _____ of the solid. The other edges created _____.



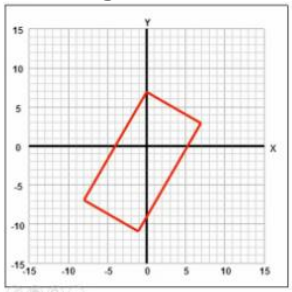
(5) When you rotate a rectangle around an axis that bisects the rectangle, a _____ is created.



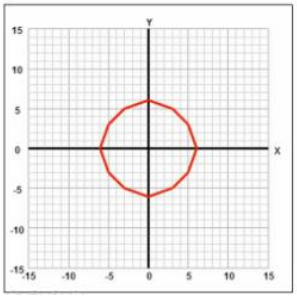
(6) When you rotate a rectangle around an axis that is along an edge, a _____is created.



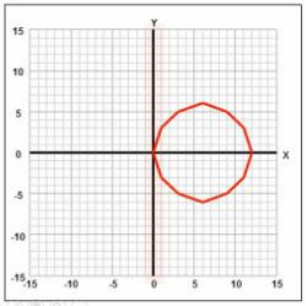
(7) Do you get a cylinder when you rotate a rectangle around a diagonal axis? _____



(8) When you rotate a circle around an axis that bisects the circle, a _____ is created.



(9) When you rotate a circle around an axis that is tangent to the circle, a _____ is created.



Cross-Sections and Revolutions Name _____#_____

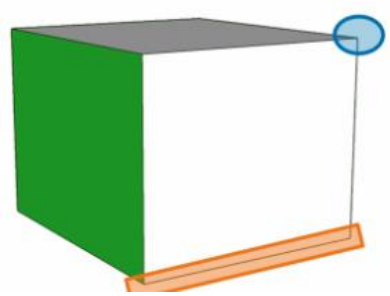
Cross-Sections of Prisms

(1) Three-dimensional shapes are called _____.

(2) Solids are made of three parts: _____,

_____, and _____.

(3) Label each of these parts on the figure provided.

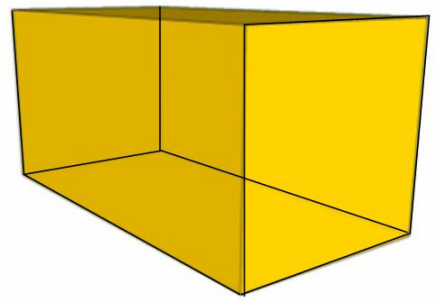


(4) A plane that intersects a 3D solid is called a _____.

(5) When a plane intersects the faces of a solid, _____ are created to form a _____ figure.

(6) If you were to slice this square-based prism vertically, you would get a _____.

If you were to slice this square-based prism horizontally, you would get a _____.



(7) A common misunderstanding is:

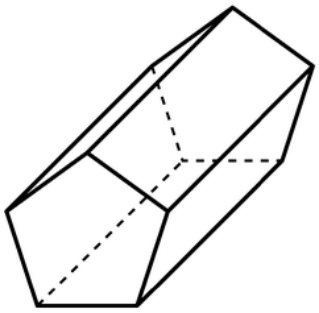
(8) Number of intersected faces = _____

(9) Is it possible to get an 8-edge cross-section from the square-based prism above? Explain why or why not?

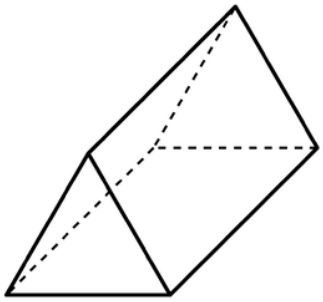
NOW, TRY THESE!

For each solid, determine the maximum number of edges of a cross-section of the solid.

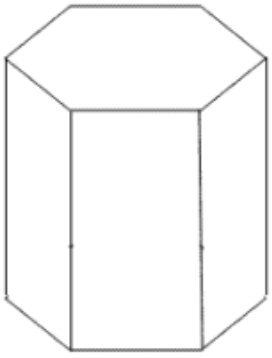
(a)



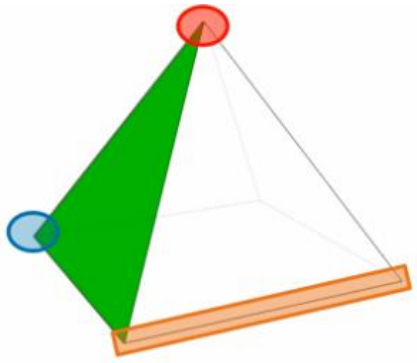
(b)



(c)



Cross-Sections of Pyramids



(1) Label the important parts of a pyramid highlighted on the figure provided.

(2) When a pyramid is sliced vertically through a face, the cross-section is a _____.

(3) When a pyramid is sliced vertically through the apex, the cross-sections is a _____.

(4) When a pyramid is sliced horizontally, the cross-section will always be _____.

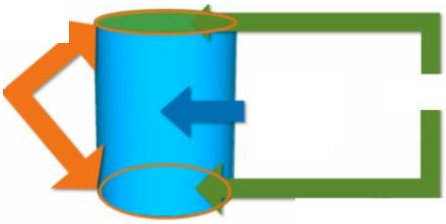
(5) Diagonal cross-sections will always _____

_____.

(6)

The Great Pyramids of Giza were originally built with a limestone cap at the top. Over the centuries, these caps have eroded away, and the tops of the pyramids are now parallel to the ground. What 2D shape describes the new top of the pyramid?

Cross-Sections of Cylinders



(1) Label the important characteristics of a cylinder provided.

(2) If you slice a cylinder horizontally, the resulting figure will be _____.

(3) Cross-sections that are parallel to the base will always be _____.

(4) If you slice a cylinder vertically (perpendicular to the bases), the resulting figure will be _____.

(5) A common misunderstanding is about cross-sections of cylinders is:

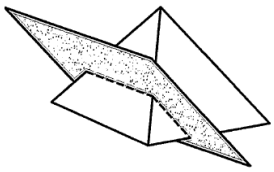
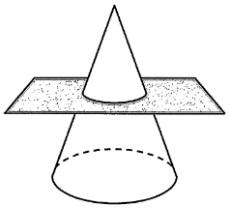
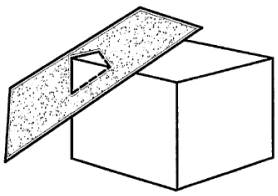
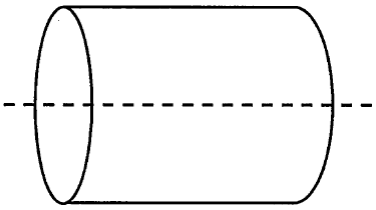
(6) If you slice a cylinder diagonally, the resulting cross-section is an _____.

(7) The types of _____ intersected determines the types of _____ on the 2D figure.

(8)

Ice cream factories test how consistently the ingredients are distributed through each carton by cutting cartons in half for a good view. Describe the 2D figures that result from slicing a carton vertically or diagonally through the top & side.

NOW, TRY THESE!

(1)	A square pyramid is cut along the shaded plane shown below. Describe the resulting figure. 	(2)	A cross-section is cut from the cone below. Describe the resulting figure. 
(3)	A rectangular prism is cut along the shaded plane shown below. Describe the resulting figure. 	(4)	A cross-section is cut from the cylinder below. Describe the resulting figure. 

Website links for videos: (You will most likely have to create a free learnzillion account to access most of these)

https://learnzillion.com/lesson_plans/8121-visualize-cross-sections-of-prisms

https://learnzillion.com/lesson_plans/5012-visualize-cross-sections-of-pyramids

https://learnzillion.com/lesson_plans/6900-visualize-cross-sections-of-cylinders

https://learnzillion.com/lesson_plans/7269-predict-3d-results-of-rotating-simple-figures

http://www.math.tamu.edu/~tkiffe/calc3/revolution3/revolution3.html