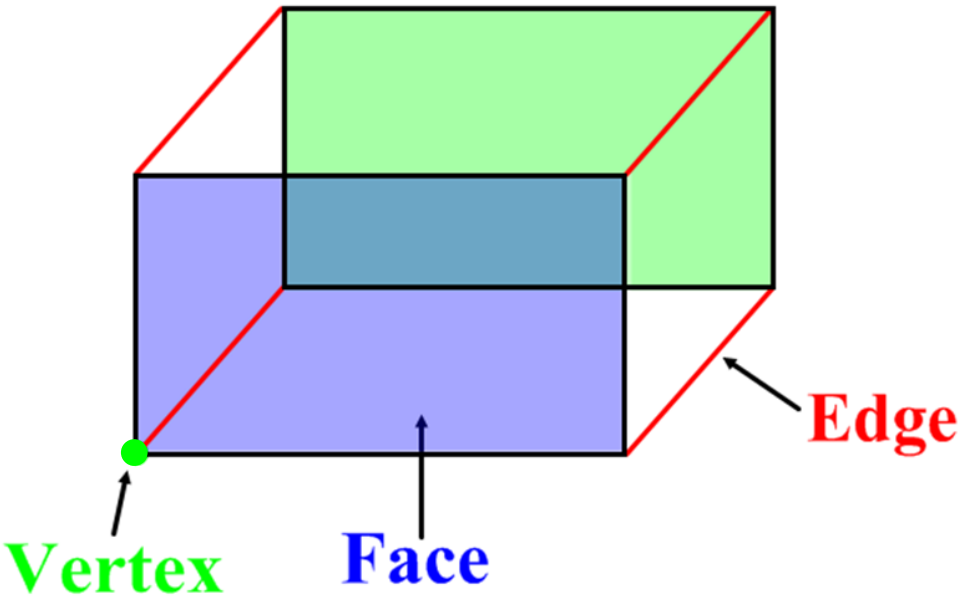
Polyhedra (Solids)

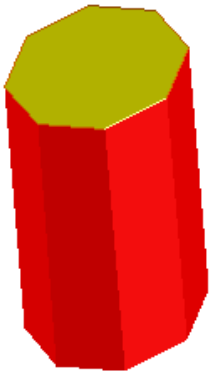
3 dimensional objects

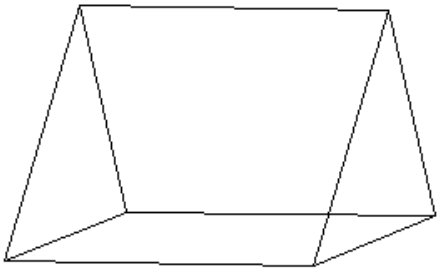

Edge
Vertex
Face

Def. Prism

A solid with 2 congruent faces that are polygons contained in parallel planes, called the bases.

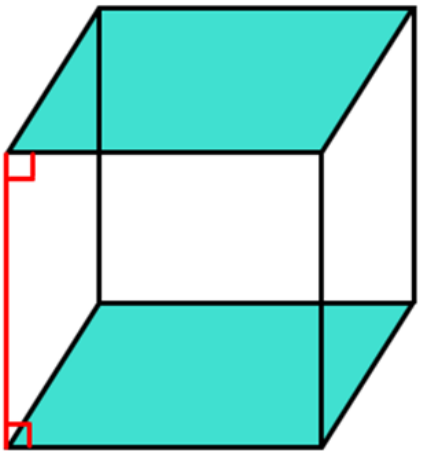
The other faces are ALWAYS parallelograms, called the Lateral Faces.





Def. Altitude (or height) of a prism

A segment that goes from BASE to BASE and is PERPENDICULAR to both bases.

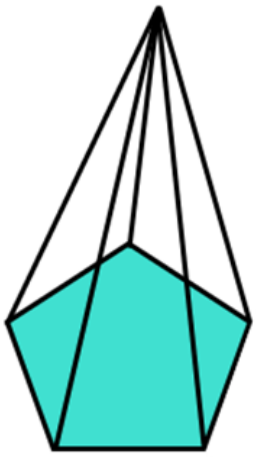


Def. Right Prism

A prism where the lateral edges are also the altitudes.

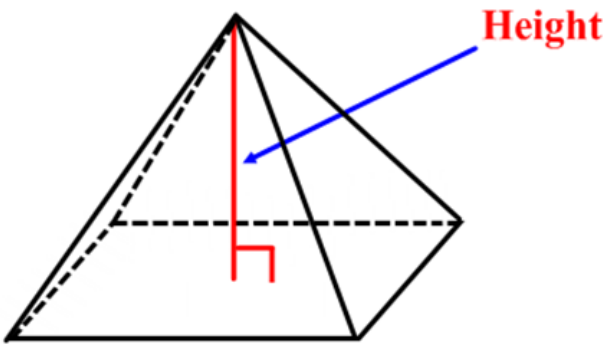
Def. Pyramid

A solid with 1 base whose lateral faces are triangles and intersect at a point called the VERTEX.



Height of a Pyramid

A segment from the vertex that is ⊥ to the base.



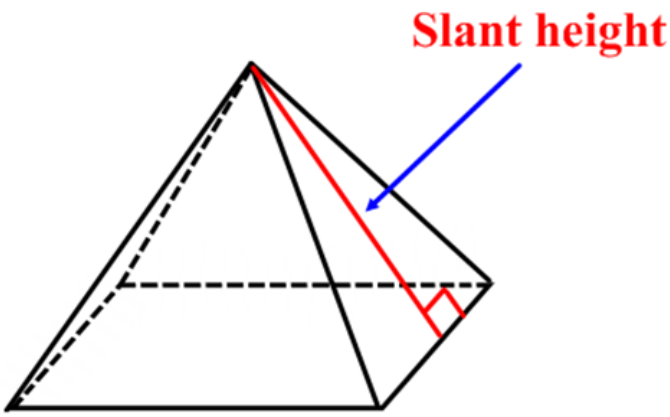
Def. Right Regular Pyramid

A pyramid whose altitude goes from the vertex to the center of the base.

The Lateral Faces are ≅ isosceles triangles.

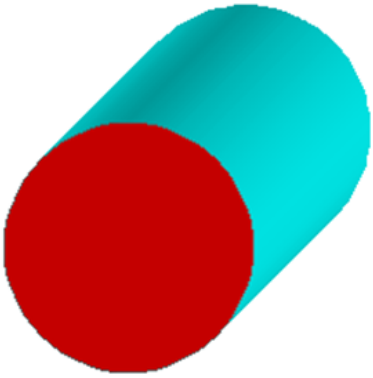
Slant height of a Right Regular Pyramid

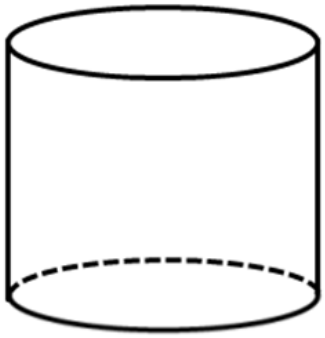
The height of each lateral face of a regular pyramid.



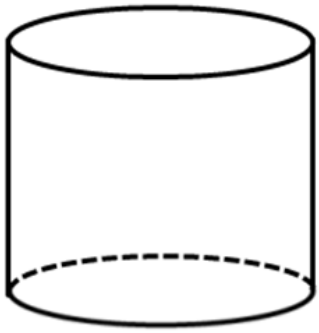
Def. Cylinder

A solid with 2 ≅ circular bases.

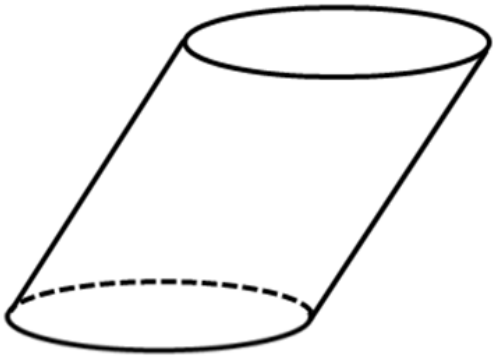




Right Cylinder

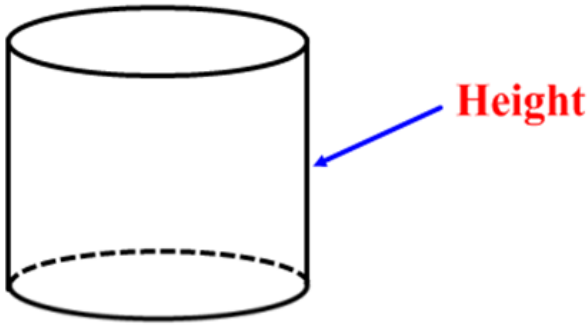


Oblique Cylinder



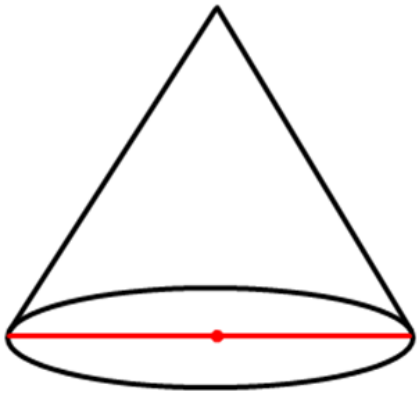
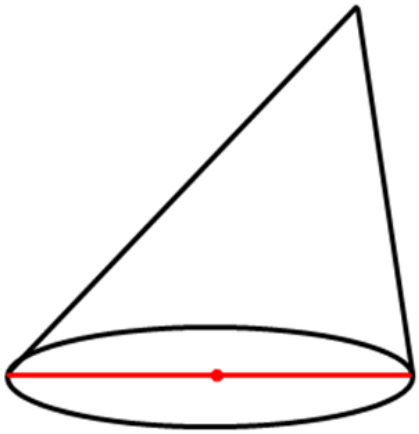
Def. Height of a Cylinder

The perpendicular distance between the bases



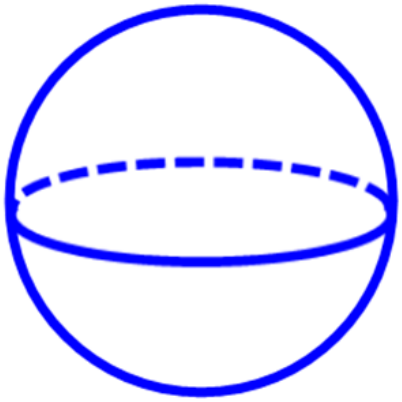
Def. Cone

A solid with exactly 1 circular base and whose lateral face intersects at a point called the VERTEX

Right Cone	Oblique Cone
	

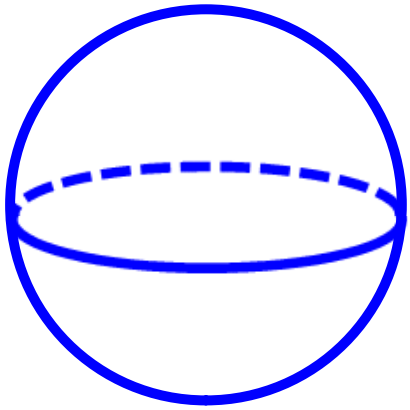
Def. Sphere

A solid that is a 3 dimensional circle.



Chord **Radius**

Diameter



Def. Regular Polyhedra

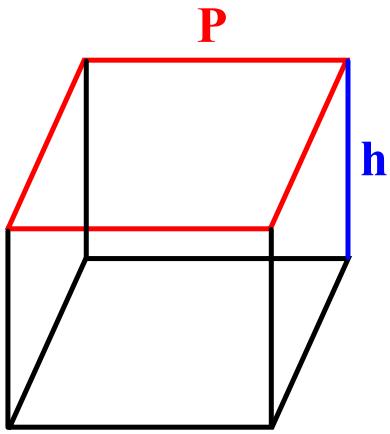
A polyhedron in which all faces are regular polygons of the exact same size and shape.

Def. Surface Area

The sum of the areas of a polyhedrons faces and bases

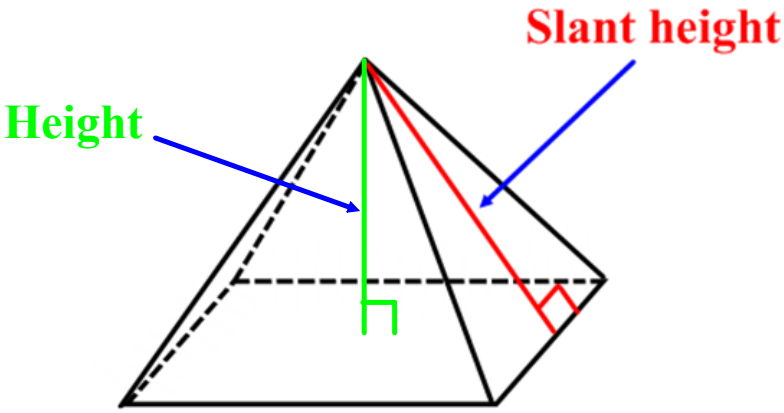
Def. Volume

The amount of space enclosed in a solid.



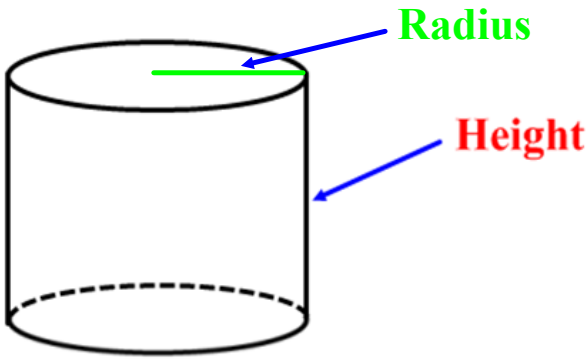
$$S = Ph + 2B$$

$$V = Bh$$



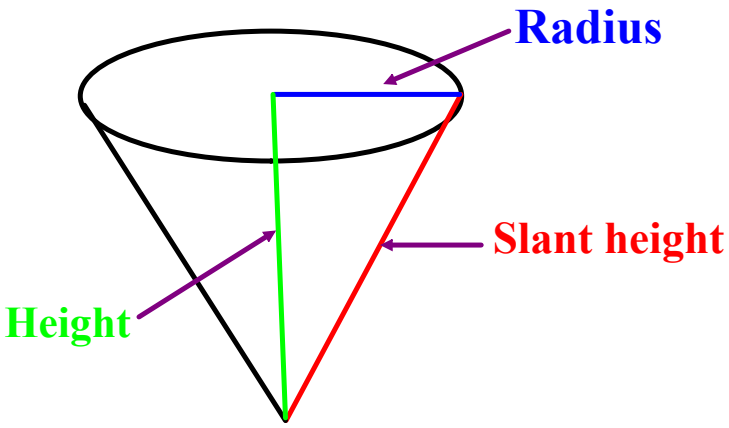
$$S = \frac{1}{2}Pl + B$$

$$V = \frac{1}{3}Bh$$



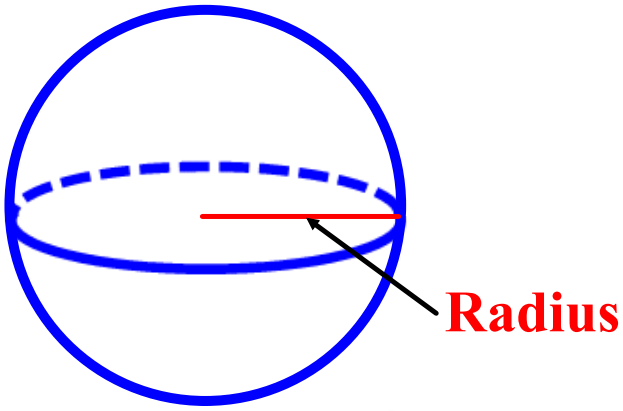
$$S = 2\pi rh + 2\pi r^2$$

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



$$S = \pi rl + \pi r^2$$

$$V = \frac{1}{3}\pi r^2 h$$



$$S = 4\pi r^2$$

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