Pyramids

Geometry

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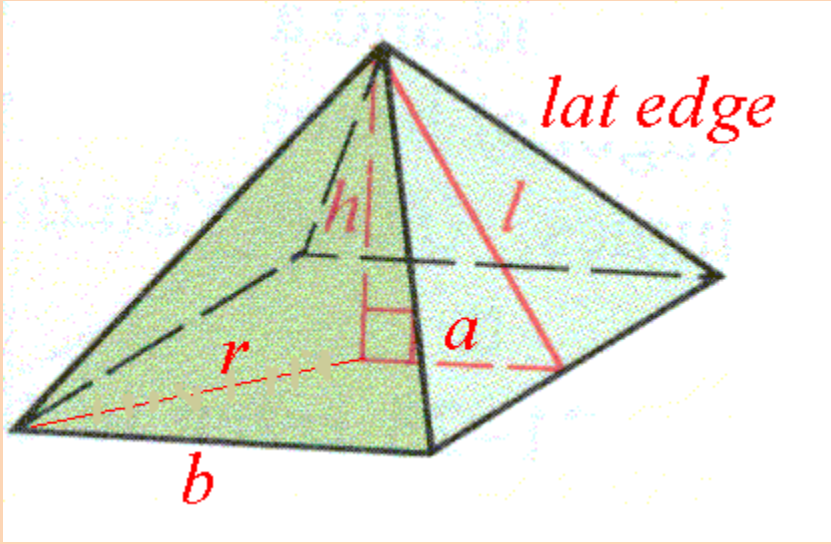
Pyramid

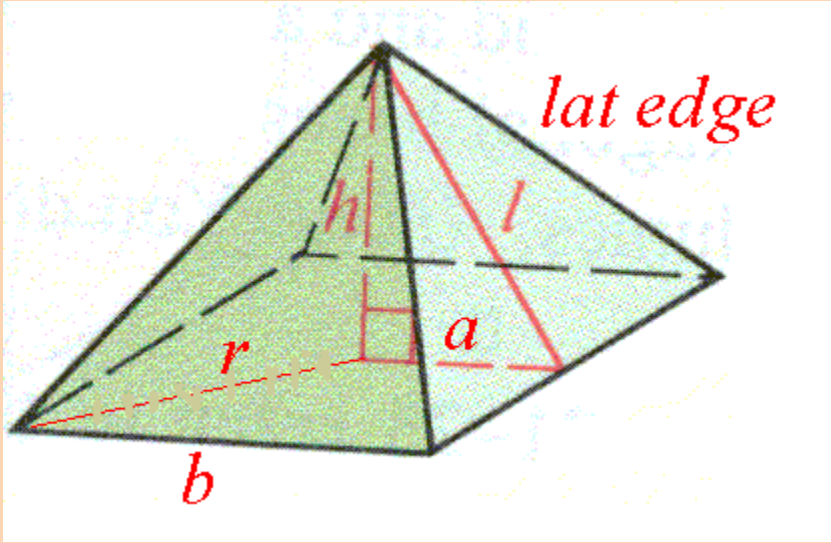
- There are a lot of interesting parts to a pyramid
- We will focus on pyramids that have regular polygons as bases
- This pyramid is a SQUARE PYRAMID



Pyramid Parts

- *b* is a BASE EDGE of the pyramid

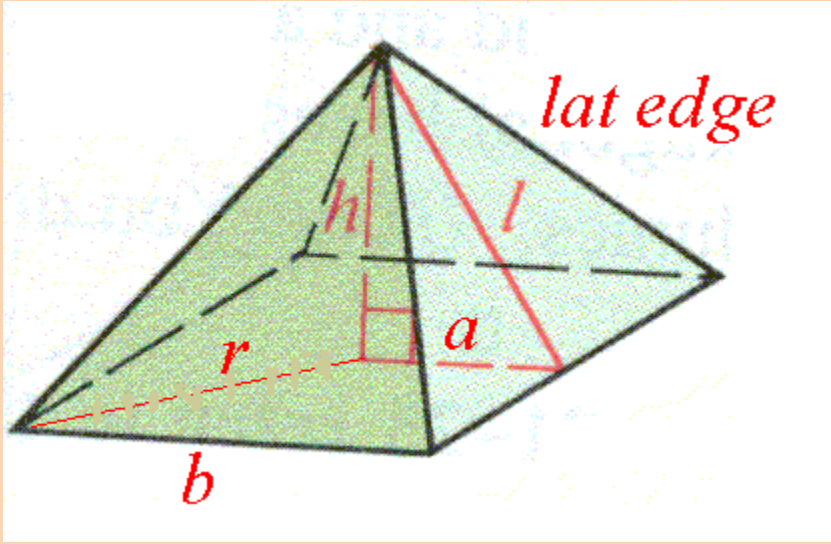
- For a regular pyramid, the perimeter will equal *b* • (# of sides)



Pyramid Parts

- *h* is the height of the pyramid

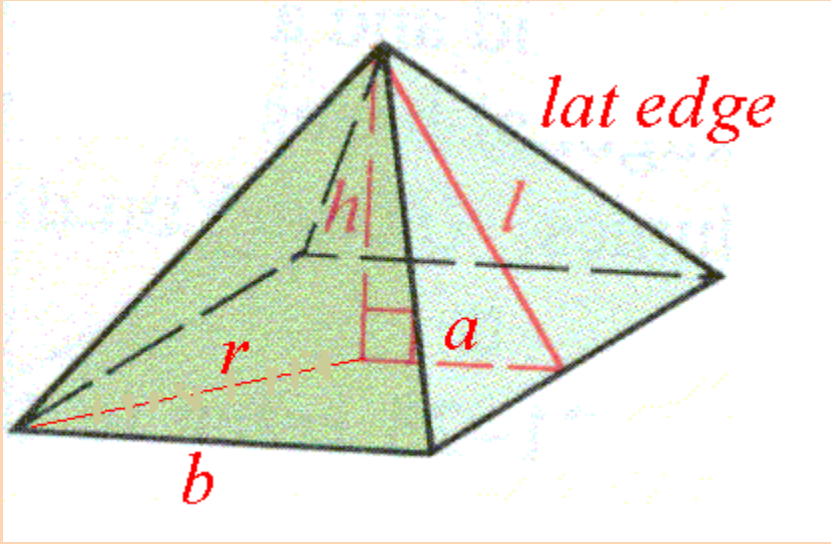
- For a regular pyramid, *h* connects the center to the apex (the top point)



Pyramid Parts

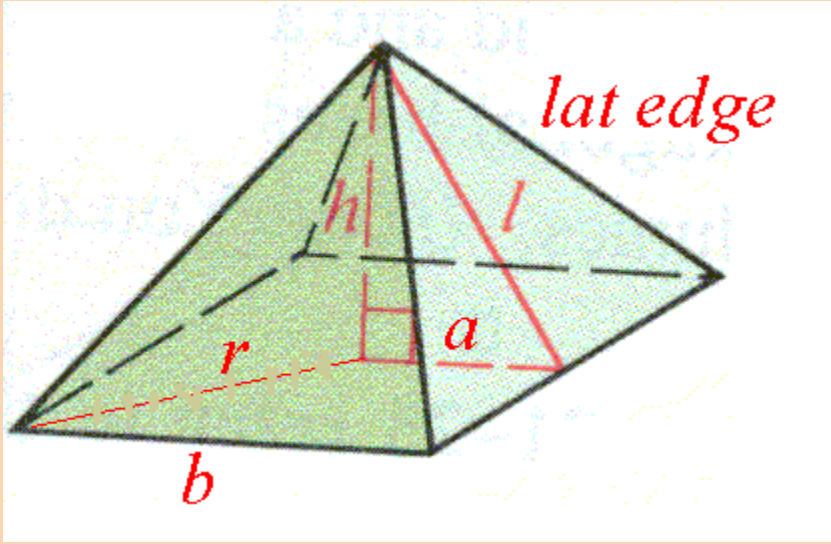
- *l* is the SLANT HEIGHT of the pyramid

- Each side of a regular pyramid is an isosceles triangle – *l* is the height of each of these triangles



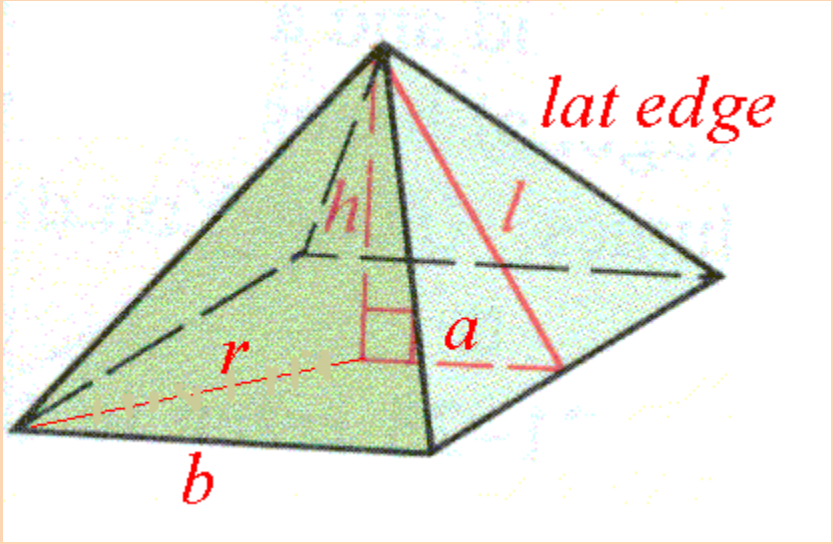
Pyramid Parts

- *r* is a RADIUS of the pyramid
- In a regular pyramid, *r* connects the center to a vertex on the base
- It's the same *r* you expect on a regular polygon



Pyramid Parts

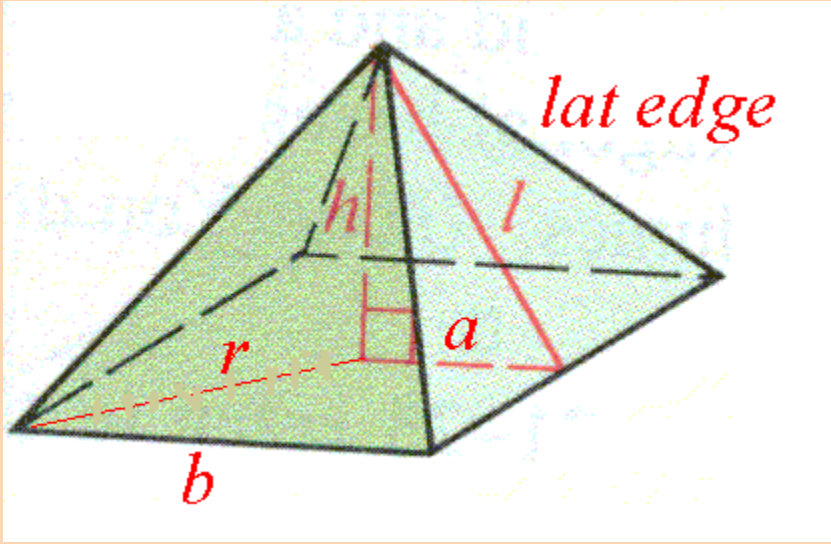
- $\underline{a}$ is an APOTHEM of the pyramid
- In a regular pyramid, $\underline{a}$ connects the center to a midpoint of a base edge
- It is perpendicular to the base edge



Pyramid Parts

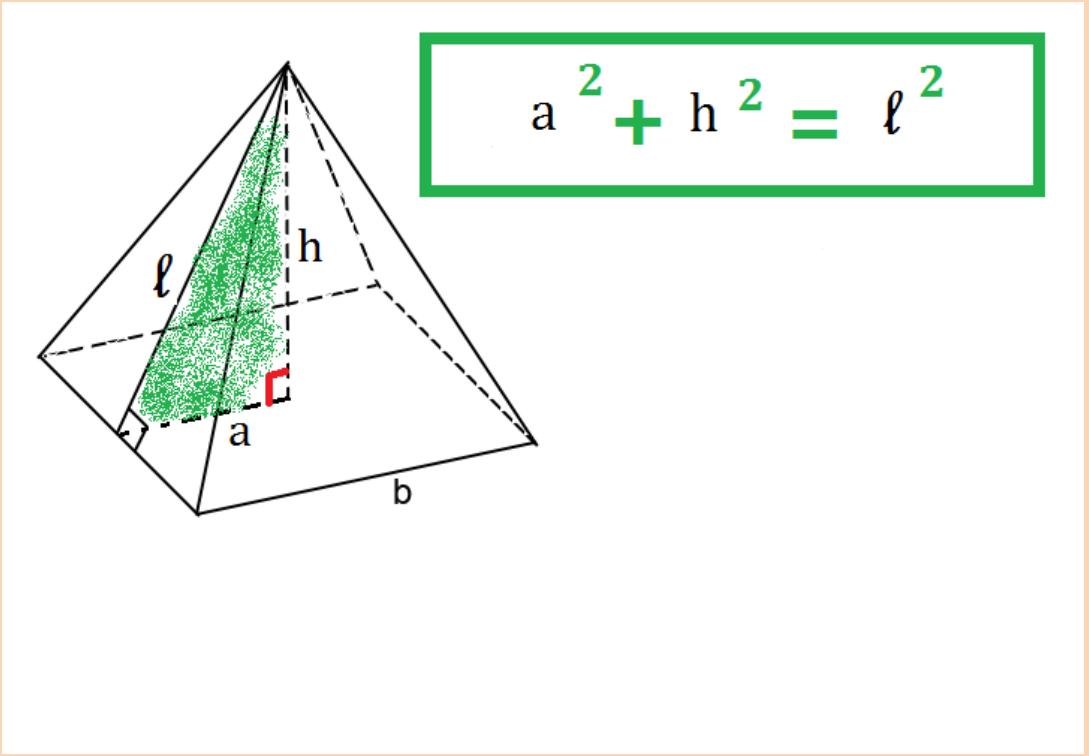
- A LATERAL EDGE (*L.E*) connects the apex with a vertex on the base

- A *L.E.* is the segment where two lateral faces meet



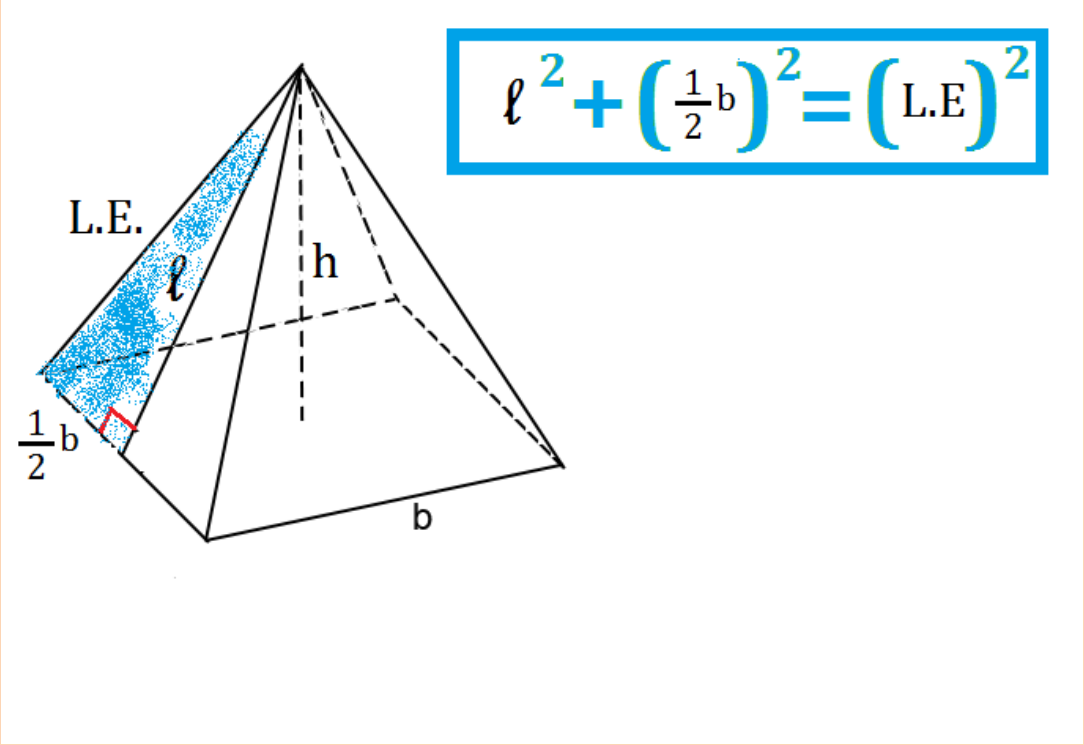
Pyramid – Right Triangle #1

- There are three types of right triangles in a regular pyramid



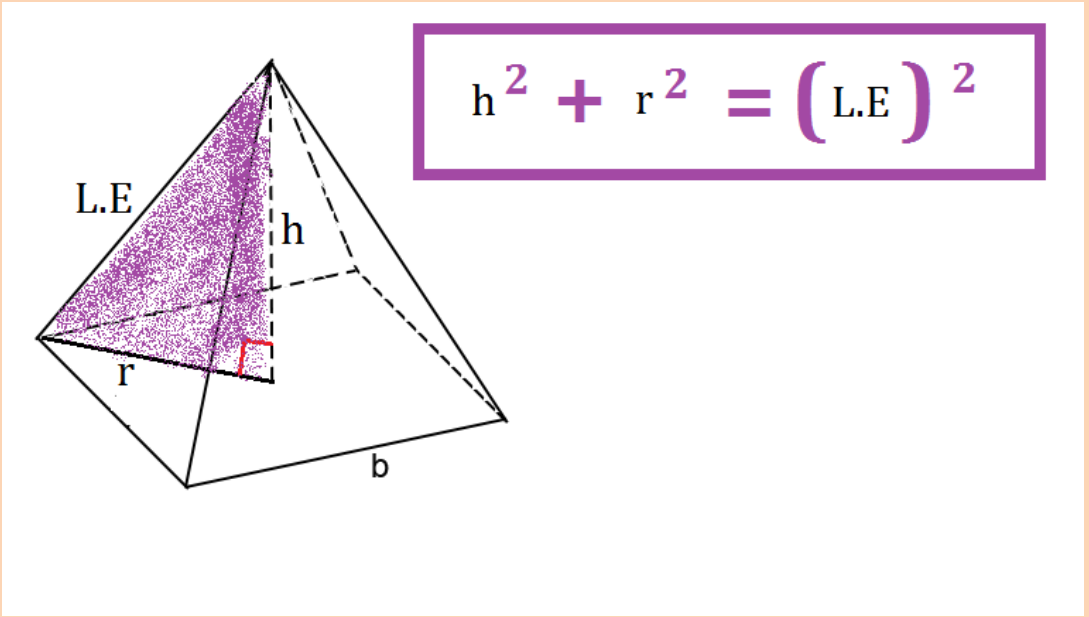
Pyramid – Right Triangle #2

- There are three types of right triangles in a regular pyramid



Pyramid – Right Triangle #3

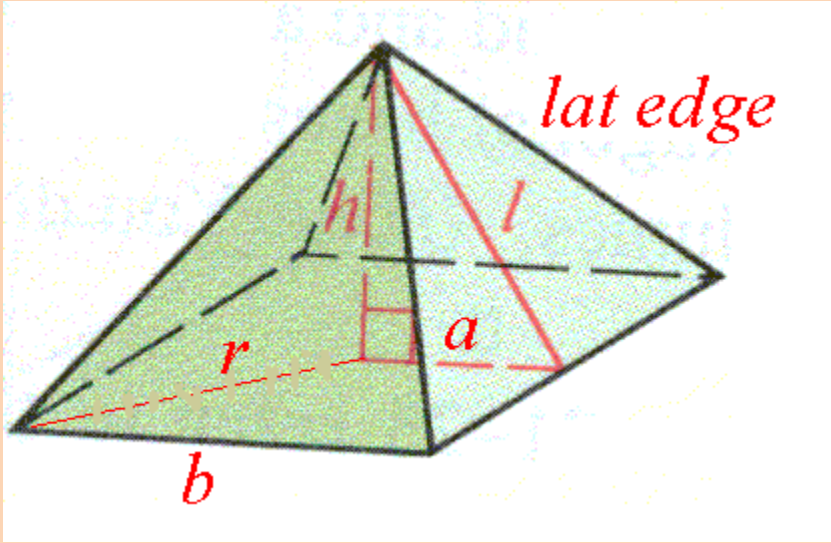
- There are three types of right triangles in a regular pyramid



Pyramid – Lateral Area

- The LATERAL AREA of a pyramid is the sum of the areas of the lateral faces (it doesn't include the base)

$$L.A. = \frac{1}{2} \bullet p \bullet l$$

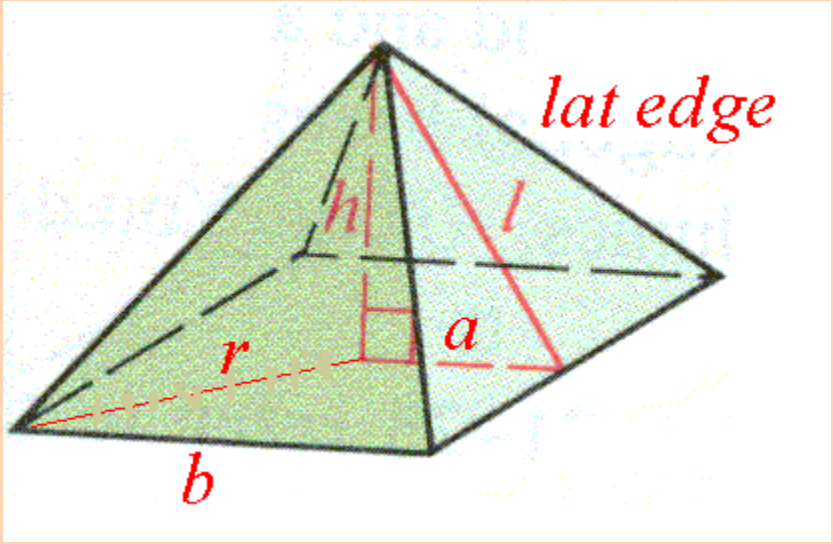


p = perimeter of base

Pyramid – Surface Area

- The SURFACE AREA of a pyramid is the sum of the areas of all the faces (including the base)

$$S.A. = L.A. + B$$



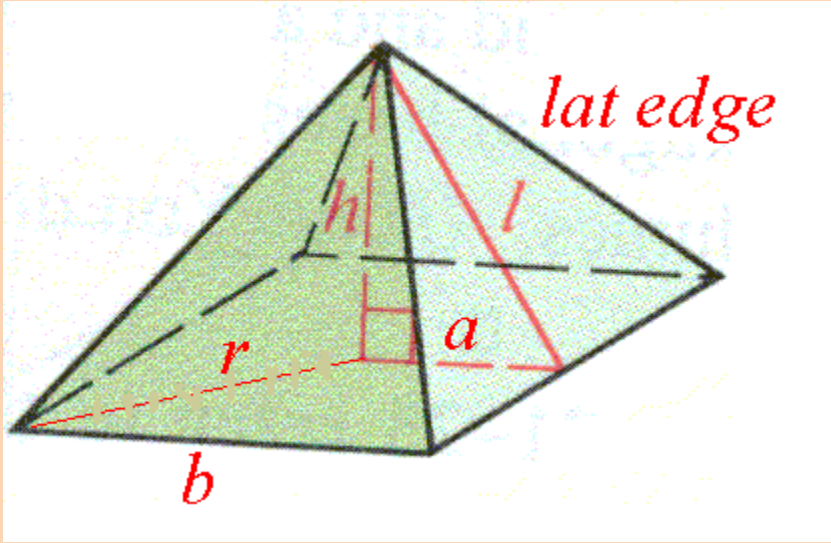
B = area of base

Pyramid – Volume

- The VOLUME of a pyramid is the amount of space it contains

$$V = \frac{1}{3} \bullet B \bullet h$$

- Remember our water activity w/pyramid and cube!



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