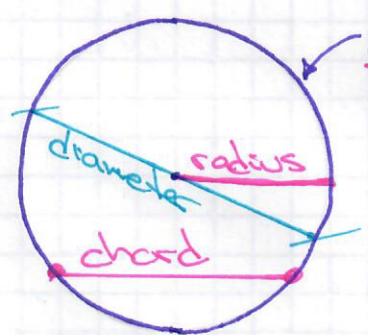


Geometry → is the study of shapes & the relationships between them.

Concepts & Terminology

- Perimeter = the distance around a 2D shape
- Area = the space inside a 2D shape
- Surface Area = outer surface on a 3D shape
- Volume = the space inside a 3D shape



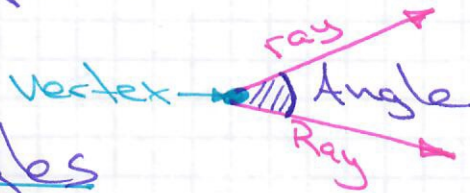
Circumference = the distance around a circle "perimeter"  
 $C = 2\pi r$   
 or  
 $C = \pi d$

Shapes (2D)

Circle	0 sides	<u>Nonagon</u> 9 sides
<u>Triangle</u>	3 sides	<u>Decagon</u> 10 sides
<u>Quadrilateral</u> (square / rectangle)	4 sides	
<u>Pentagon</u>	5 sides	
<u>Hexagon</u>	6 sides	
<u>Heptagon</u>	7 sides	
<u>Octagon</u>	8 sides	

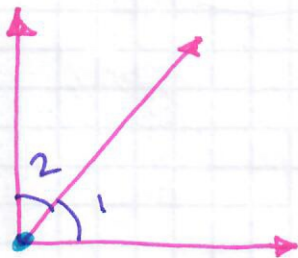
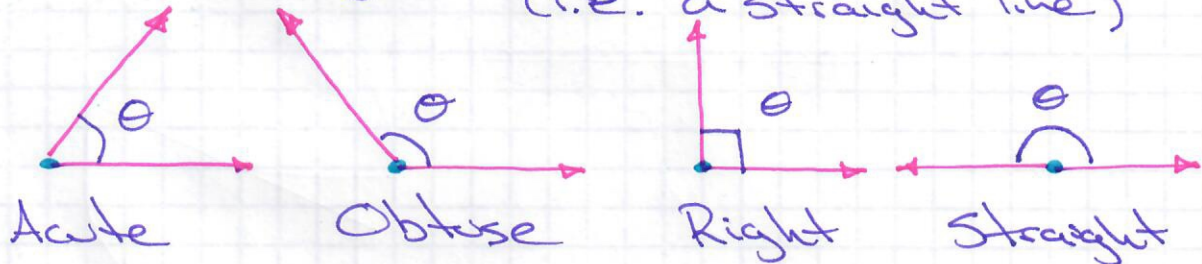
3D shapes follow the same Prefix system by they end in "hedron"  
 eg. Octahedron  
 Most have special names too!

Angles - formed by an endpoint (i.e. vertex) and two (2) rays leaving the end point



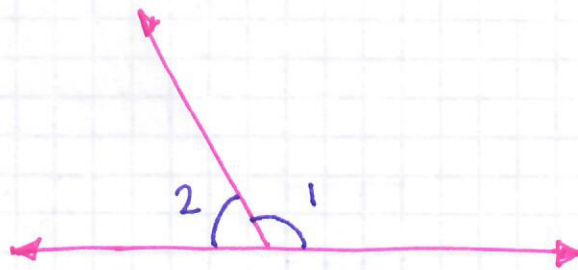
Classifying Angles

- Acute - angle between  $0^\circ$  &  $90^\circ$  ( $< 90^\circ$ )
- Obtuse - angle between  $90^\circ$  &  $180^\circ$  ( $< 180^\circ$ )
- Right Angle - angle exactly @  $90^\circ$
- Straight - angle that is  $180^\circ$  (i.e. a straight line)



★ Complementary Angles

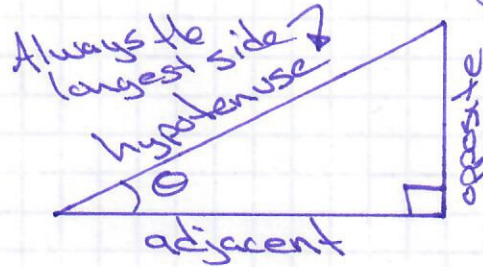
$$\angle_1 + \angle_2 = 90^\circ$$



★ Supplementary Angles

$$\angle_1 + \angle_2 = 180^\circ$$

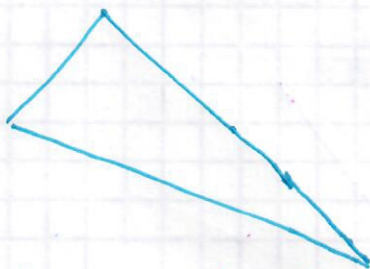
Triangles • sum of 3 angles in a triangle always equals 180°



Special Triangle  
Right Angle  $\Delta$

Types of Triangles

Scalene



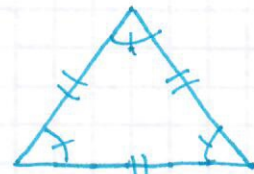
- \* No Equal sides
- \* No Equal angles

Isosceles



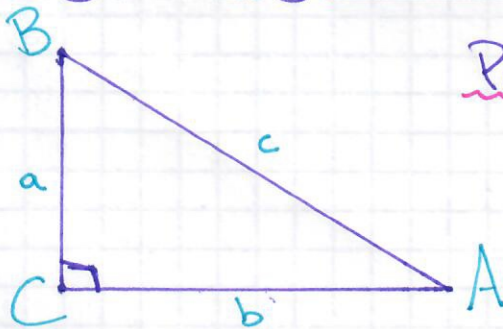
- \* 2 equal sides
- \* 2 equal angles

Equilateral



- \* 3 equal sides
- \* 3 equal angles

Right Angle Triangle Properties



Pythagorean Theorem

$$c^2 = a^2 + b^2$$

$$a^2 = c^2 - b^2$$

$$b^2 = c^2 - a^2$$

Trigonometry

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

"SOH CAH TOA"