

Do-Now:

At your table, discuss and make a list about everything you know about triangles.

Classify Δ s

$$\angle s = 180^\circ$$

Right -
Equilateral -
Scalene -
Isosceles -
Acute
Obtuse

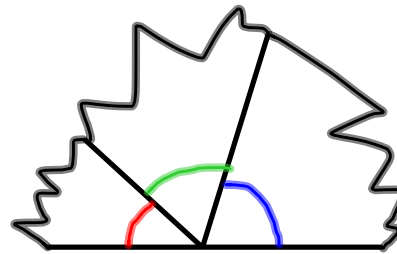
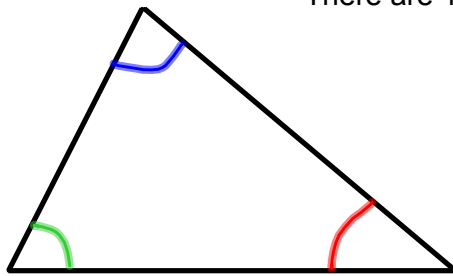
Polygon
3 sides

Supplementary Angles = Two or more angles that add up to 180 degrees

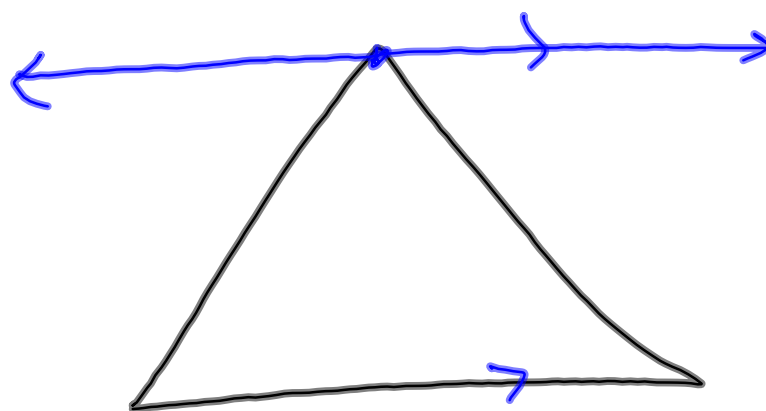


Names:
Today's Date:

There are 180° in a triangle.



Acute, Scalene Triangle

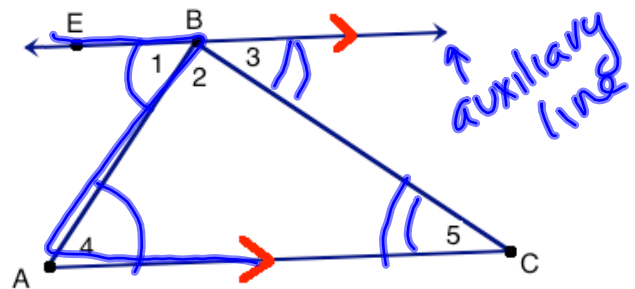


At your table, write a paragraph proof to show that there are 180 degrees in a triangle.

Questions to consider:

1. What are you trying to prove?

$$\angle 2 + \angle 4 + \angle 5 = 180$$



2. What is the relationship among angles 1, 2, and 3?

$$\angle 1 + \angle 2 + \angle 3 = 180 \text{ b/c they are suppl.}$$

$\angle 4$ $\angle 5$

3. Why was the auxiliary line drawn to be parallel to one of the sides?

$$\angle 1 \cong \angle 4 \text{ b/c they're alt. int. } \angle s.$$

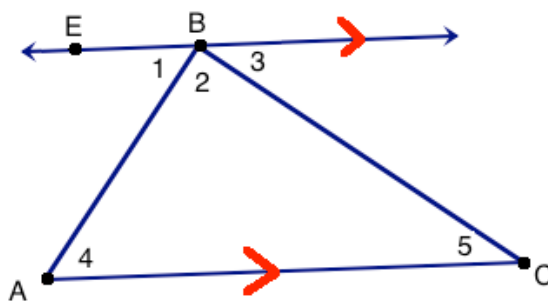
$$\angle 3 \cong \angle 5 \text{ '}$$

By the angle addition postulate (or definition of supplementary angles),

$\angle 1 + \angle 2 + \angle 3 = 180$. Since $EC \parallel AB$, $\angle 1 = \angle 4$ and $\angle 3 = \angle 5$

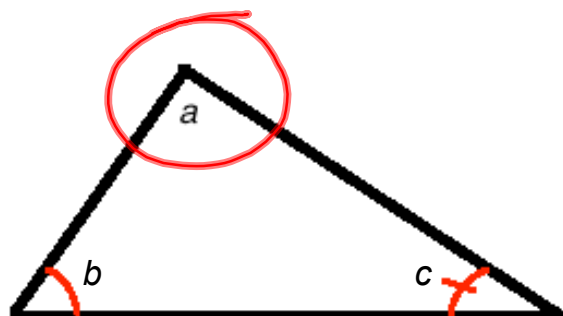
because alternate interior angles are congruent. By substitution,

$\angle 4 + \angle 2 + \angle 5 = 180$. Therefore, the sum of the measures of the angles in a triangle equal 180.



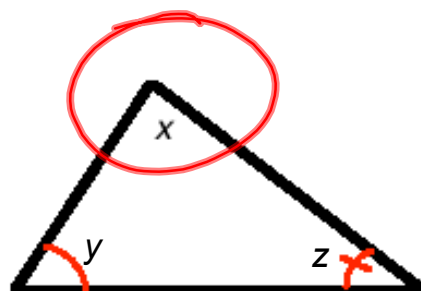
Triangle Angle Sum Theorem

Conjecture: If two angles of one triangle are equal in measure to two angles of another triangle, then the third angles of the triangles are congruent.



Given:

$$\begin{aligned}\angle b &\cong \angle y \\ \angle c &\cong \angle z\end{aligned}$$



Prove:

$$\angle a \cong \angle x$$

