

## Triangle Notes

Angle Sum of a Triangle - the sum of the measures of a triangle must equal  $180^\circ$ .

Triangles are classified by their **angles** and **sides**.

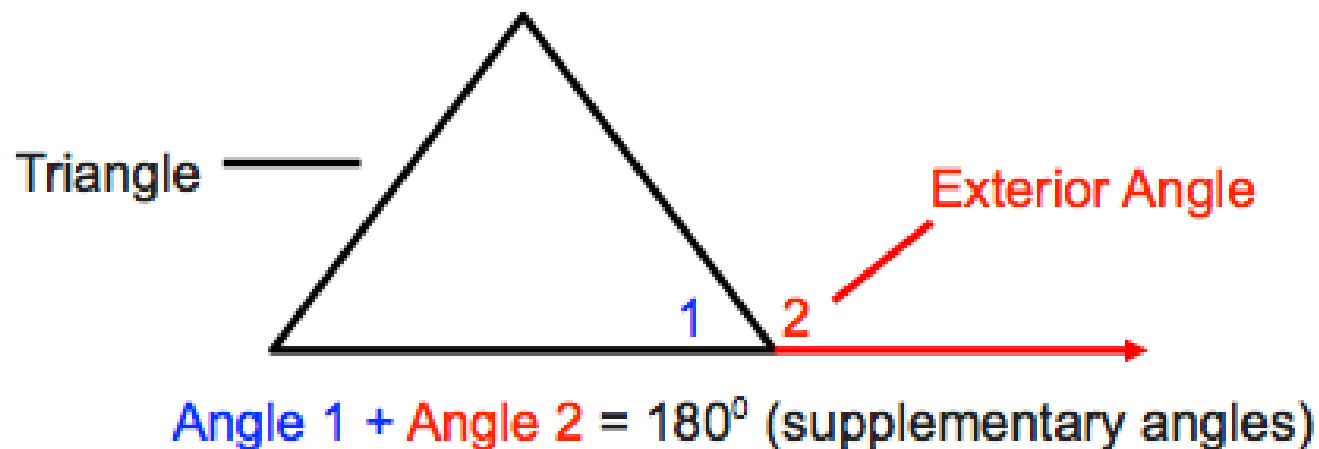
### Angle Classifications

- 1) Acute Triangle
- 2) Right Triangle
- 3) Obtuse Triangle

### Side Classifications

- 1) Scalene
- 2) Isosceles
- 3) Equilateral

An exterior angle formed off of an interior angle of a triangle are together supplementary.



Example 1: The measures of the angles of Triangle XYZ are in the ratio 2:3:5. What are the measures of each angle? Classify the triangle.

$$\angle 1 = 2x$$

$$\angle 2 = 3x$$

$$\angle 3 = 5x$$

$$2x + 3x + 5x = 180$$

$$10x = 180$$

$$x = 18$$

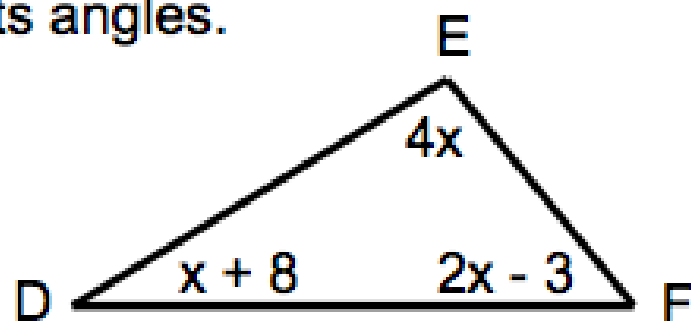
$$\angle 1 = 2(18) = 36^\circ$$

$$\angle 2 = 3(18) = 54^\circ$$

$$\angle 3 = 5(18) = 90^\circ$$

Right  $\triangle$

Example 2: Find the measures of the angles in the triangle. Then classify based on its angles.



$$7x + 5 = 180$$

$$7x = 175$$

$$x = 25$$

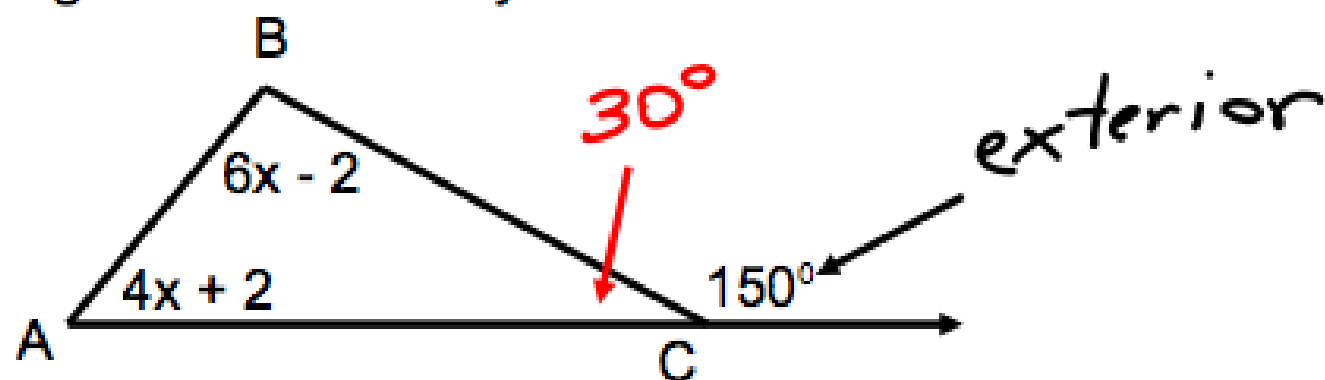
$$\angle D = (25) + 8 = 33^\circ$$

$$\angle E = 4(25) = 100^\circ$$

$$\angle F = 2(25) - 3 = 47^\circ$$

Obtuse  $\triangle$

Example 3: Find the value of  $x$  in the triangle. Then find the measurements of the angles. Then classify.



$$\angle A = 4(15) + 2 = 62^\circ \quad 10x + 30 = 180$$

$$\angle B = 6(15) - 2 = 88^\circ \quad 10x = 150$$

$$\angle C = 30^\circ \quad x = 15$$

Acute  $\Delta$