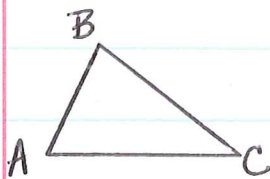


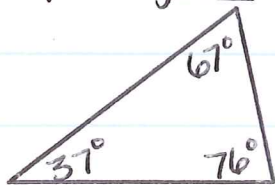
# 4-1 Classifying Triangles



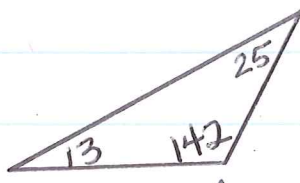
$\angle BAC$  or  $\angle A$ ,  $\angle B$ ,  $\angle C$   
 $\overline{BC}$ ,  $\overline{AC}$ ,  $\overline{AB}$

Classifying Triangles by angles or sides

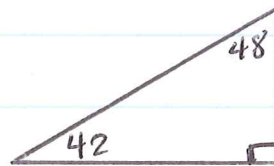
## By Angles:



Acute  $\Delta$   
all angles  
measure  $< 90$

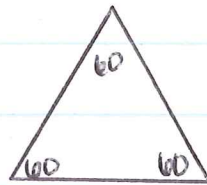


Obtuse  $\Delta$   
one angle  
measures  $> 90$

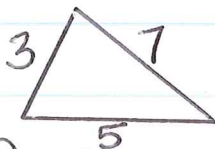


Right  $\Delta$   
one angle =  $90$

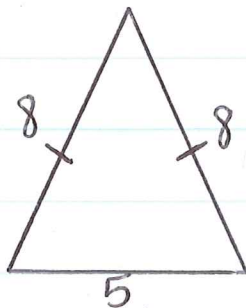
equiangular  $\Delta$   
all angles are equal



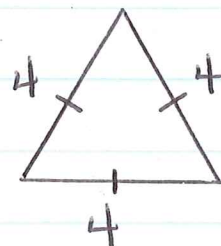
## By Sides:



Scalene  $\Delta$   
no two sides  
are congruent

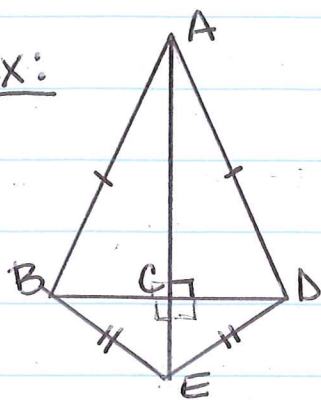


Isosceles  $\Delta$   
two sides  
are congruent



Equilateral  $\Delta$   
all sides are  
congruent

ex:



Isosceles Triangle:

$\triangle BAD, \triangle BED$

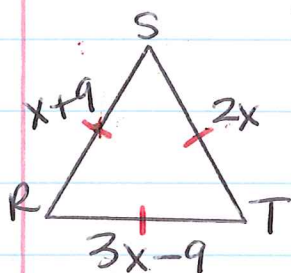
Scalene Triangle:

$\triangle ADE, \triangle ABE, \triangle CED,$

$\triangle BCE, \triangle ACD, \triangle BCA$

Right Triangle:  $\triangle ACD, \triangle ACB, \triangle BCE, \triangle DEC$

ex:  $\triangle RST$  is equilateral. Find  $x$  and the measure of each side.



$$x+9 = 3x-9$$
$$-x+9 \quad -x+9$$

$$18 = 2x$$

$$\boxed{x = 9}$$

$$RS = 9+9$$

$$\boxed{RS = 18}$$

$$RT = 3(9) - 9$$

$$RT = 27 - 9$$

$$\boxed{RT = 18}$$

$$ST = 2(9)$$

$$\boxed{ST = 18}$$

ex:  $\triangle DEC$  has vertices of  $D(3, 9)$ ,  $C(2, 2)$  and  $E(-5, 3)$ . Classify this triangle by its sides.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$D(3,9) \quad C(2,2)$$

$x_1 \quad y_1 \quad x_2 \quad y_2$

$$DC = \sqrt{(2-3)^2 + (2-9)^2}$$

$$DC = \sqrt{(-1)^2 + (-7)^2}$$

$$DC = \sqrt{1 + 49}$$

$$DC = \sqrt{50}$$

$$D(3,9) \quad E(-5,3)$$

$x_1 \quad y_1 \quad x_2 \quad y_2$

$$DE = \sqrt{(-5-3)^2 + (3-9)^2}$$

$$DE = \sqrt{(-8)^2 + (-6)^2}$$

$$DE = \sqrt{64 + 36}$$

$$DE = \sqrt{100}$$

$$DE = 10$$

$\triangle DEC$  is  
isosceles.

$$C(2,2) \quad E(-5,3)$$

$x_1 \quad y_1 \quad x_2 \quad y_2$

$$CE = \sqrt{(-5-2)^2 + (3-2)^2}$$

$$CE = \sqrt{(-7)^2 + (1)^2}$$

$$CE = \sqrt{49 + 1}$$

$$CE = \sqrt{50}$$