

**AGENDA** →

0:00:00

**WED**  
**2/5**

**TO-DO**

- 1) Warm-Up
- 2) Notes

**REMINDERS**

ALL electronics should be put away in your **BAG!**

> Unit 2A Quiz 1 on **FRIDAY**

1)  $\angle 1$  and  $\angle 2$  are complementary angles. If

$m\angle 1 = 5x - 9$  and  $m\angle 2 = 10x - 6$ . What are the measures of the two angles?

$$m\angle 1 + m\angle 2 = 90^\circ$$

$$5x - 9 + 10x - 6 = 90$$

$$15x - 15 = 90$$

$$\begin{array}{r} +15 \quad +15 \\ \hline 15x = 105 \end{array}$$

$$\frac{15x}{15} = \frac{105}{15}$$

$$x = 7$$

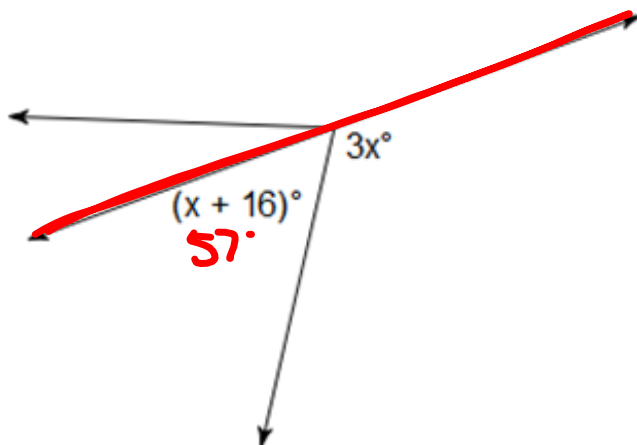
$$m\angle 1 = 5(7) - 9$$

$$= 35 - 9 = 26$$

$$m\angle 2 = 10(7) - 6$$

$$= 64$$

2) Solve for x.



$$x + 16 + 3x = 180$$

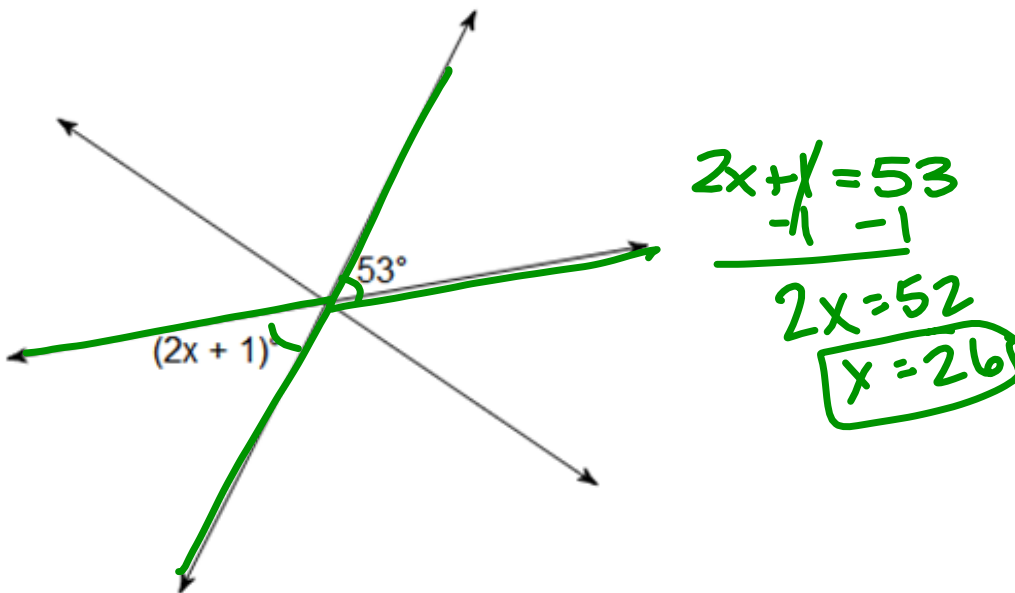
$$4x + 16 = 180$$

$$\begin{array}{r} -16 \quad -16 \\ \hline 4x = 164 \end{array}$$

$$4x = 164$$

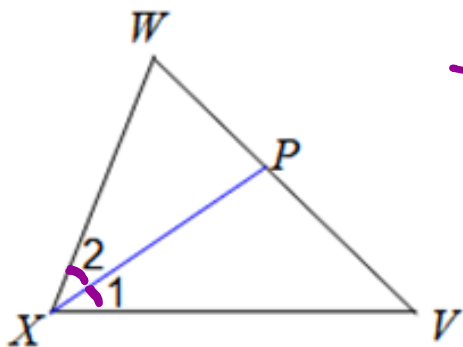
$$x = 41$$

3) Solve for x.



4) The figure shows a triangle with one of its angle bisectors.

Find  $m\angle 2$  if  $m\angle 2 = 3x + 7$  and  $m\angle 1 = 4x - 2$ .



$$\begin{array}{r} m\angle 2 = m\angle 1 \\ 3x + 7 = 4x - 2 \\ -3x \quad -3x \\ \hline 7 = x - 2 \\ +2 \quad +2 \\ \hline x = 9 \end{array}$$

$$\begin{array}{l} m\angle 2 = 3(9) + 7 \\ \boxed{m\angle 2 = 34^\circ} \end{array}$$

# **What am I learning today?**

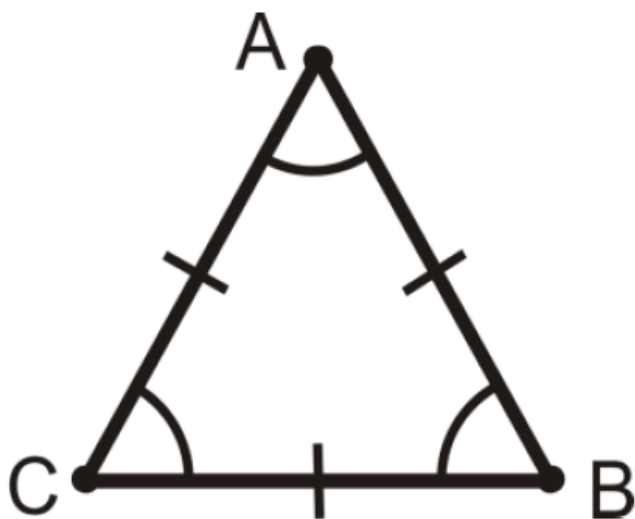
## **Learning Objective 2A.2**

How to explain and use the characteristics of equilateral and isosceles triangles.

## **What will I do to show that I have learned it?**

I can...Use congruent sides and angles in equilateral triangles and the base angle theorem in isosceles triangles.

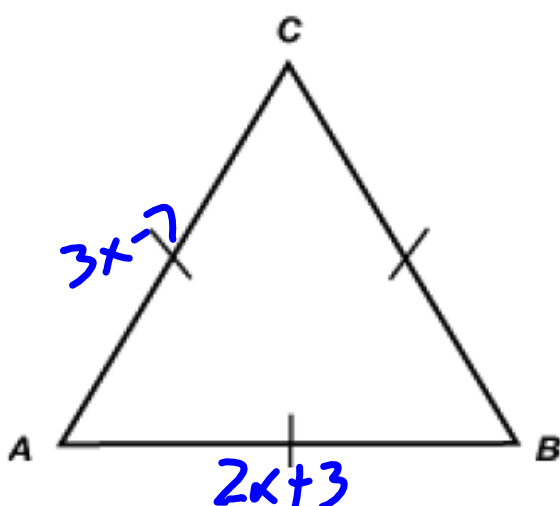
**Equilateral Triangle** - A triangle with 3 congruent **SIDES** and **ANGLES**



**EACH ANGLE**  
**MEASURE IS:**

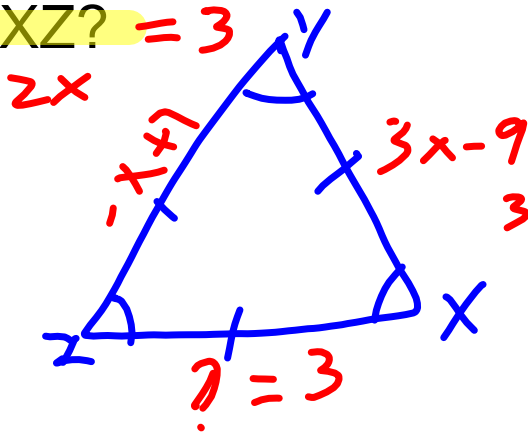
$$\frac{180}{3} = 60^\circ$$

1. If  $AB = 2x + 3$  and  $AC = 3x - 7$ , solve for  $x$ ?



$$\begin{array}{r} 3x-7 = 2x+3 \\ -2x \quad -2x \\ \hline x-7 = 3 \\ +7 \quad +7 \\ \hline x=10 \end{array}$$

2. If  $\triangle ZYX$  is an equilateral triangle,  
 $ZY = -x + 7$  and  $YX = 3x - 9$ , what is the length  
 of  $XZ$ ? = 3



$$-x + 7 = 3x - 9$$

$$\begin{array}{r} -x + 7 = 3x - 9 \\ +x \quad \quad +x \\ \hline \end{array}$$

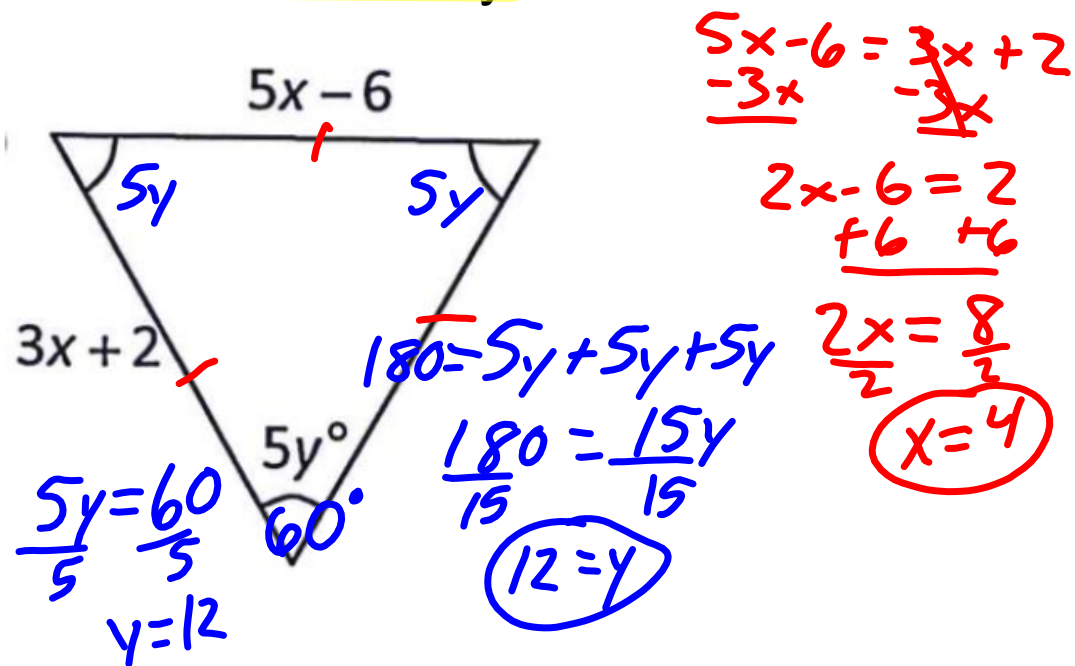
$$\begin{array}{r} 7 = 4x - 9 \\ +9 \quad \quad +9 \\ \hline \end{array}$$

$$\begin{array}{r} 16 = 4x \\ \quad \quad \quad 4 \\ \hline \end{array}$$

$$x = 4$$



3. Solve for x and y.

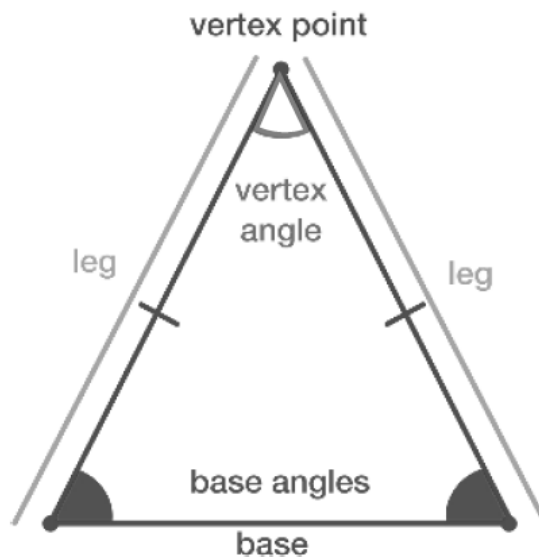


**Isosceles Triangle** - A triangle with 2 congruent **SIDES** and **ANGLES**

**Legs** - The congruent **SIDES** of an isosceles triangle.

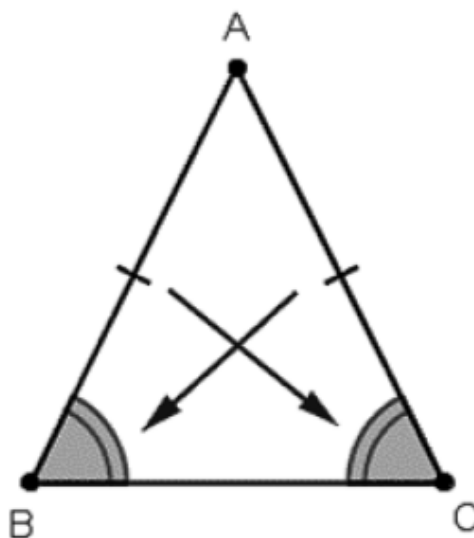
**Base** - The **non-congruent** side of an isosceles triangle

**Base Angles** - The congruent angles opposite of the **LEGS**



### Isosceles Triangle Theorem

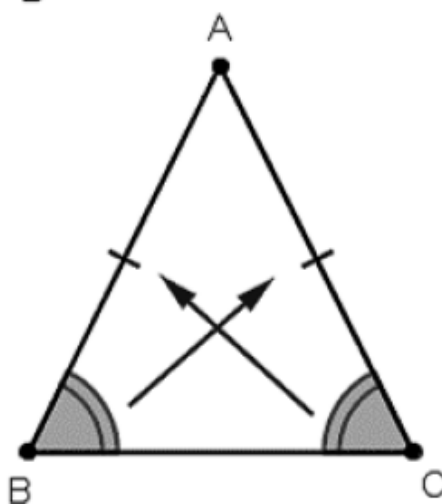
If two sides of a triangle are congruent, then the angles opposite of the sides are congruent.



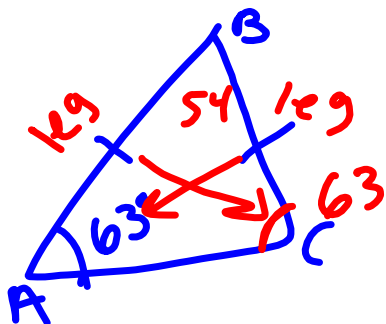
## Converse Isosceles Triangle Theorem

*Reverse*

If two angles of a triangle are congruent, then the sides opposite of the ~~sides~~ *angles* are congruent.



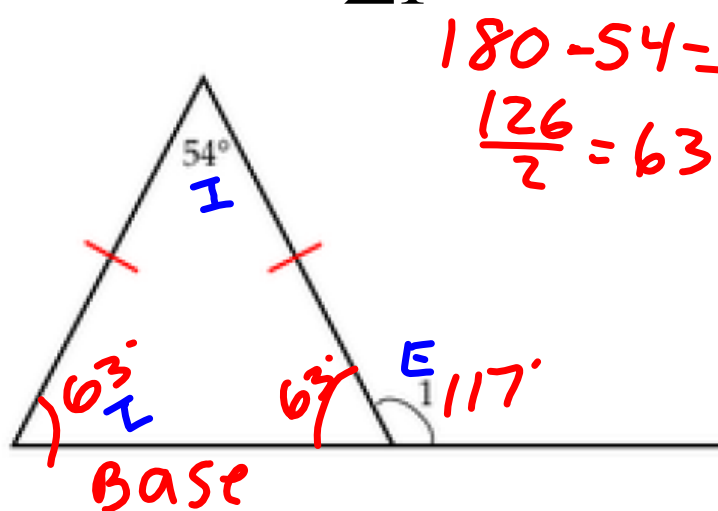
1.  $\triangle ABC$  is an isosceles with legs AB and BC. If the  $m\angle A = 63^\circ$ , what is the  $m\angle B$ ?



$$180 - 63 - 63 = 54^\circ$$

$$m\angle B = 54^\circ$$

2. Solve for  $m\angle 1$



$$180 - 54 = 126$$

$$\frac{126}{2} = 63$$

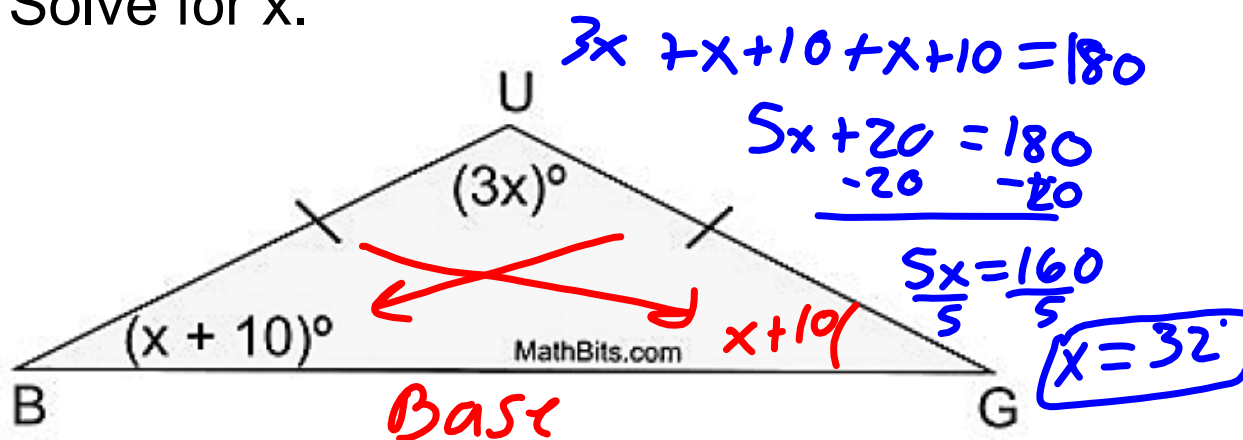
$$180 - 63 = 117$$

$$I + I = E$$

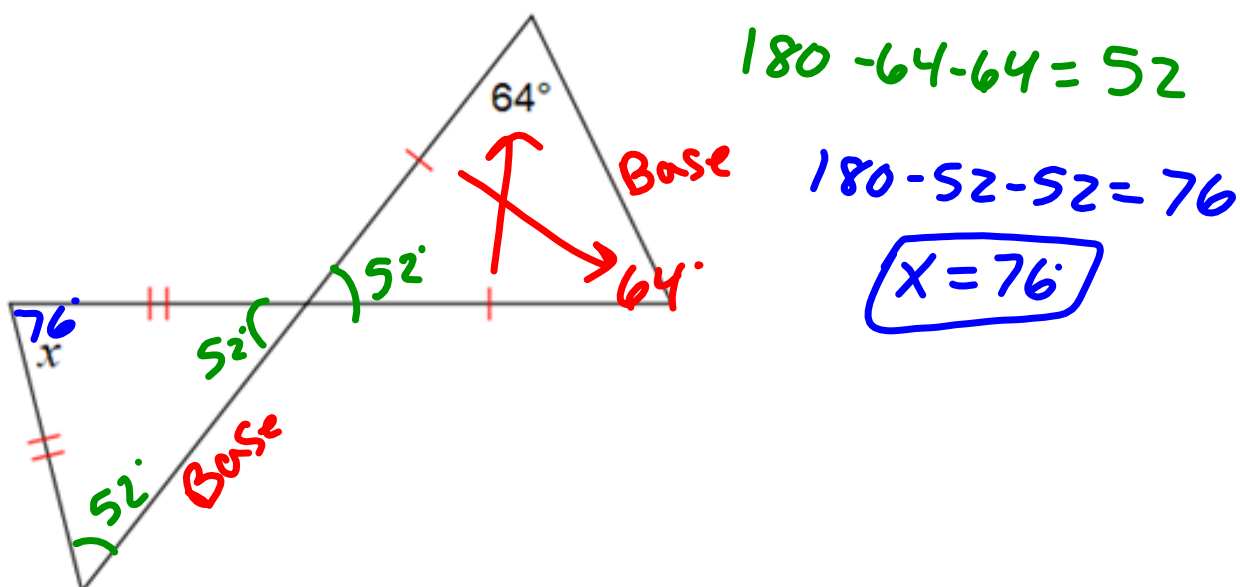
$$63 + 54 = E$$

$$117 = m\angle 1$$

3. Solve for x.

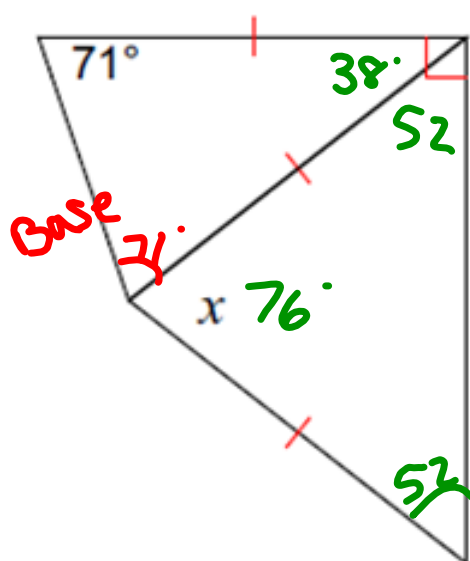


4) Solve for x





5) Solve for x.



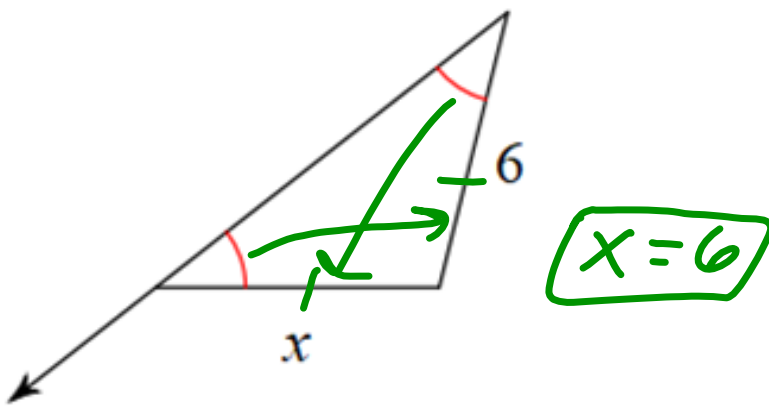
$$180 - 71 - 71 = 38$$

$$90 - 38 = 52$$

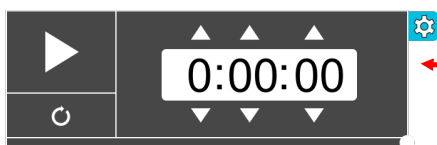
$$180 - 52 - 52 = 76$$

$$\boxed{x = 76}$$

6) Solve for  $x$ .



**Classwork:**



Actively  
working

Complete the classwork by using isosceles and equilateral characteristics.

**HW:** Finish the classwork