

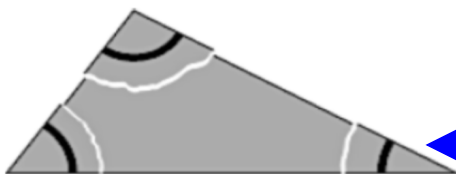
Tuesday 2/4/2020:

1. Put your phones/ear buds in bags
2. Grab the Warm-Up, scissors & ruler
3. Start Warm-up (10:00)
4. Triangle Characteristics Notes
5. Classwork, then HW

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Warm-up:**Part 1:**

1. Work through each of the 3 problems on the warm-up half sheet

**Part 2:**

1. Grab a pair of scissors (if you haven't already).
2. Using a straight edge, draw as large a triangle as possible on the purple sheet, then cut it out.
3. Draw an angle symbol in each angle.
4. Then...
Rip the three angles off, as seen to the left.



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1. Write the rule for the transformations
 $C(-1, -2), D(-8, -5) \rightarrow C'(2, -1), D'(5, -8)$

X & Y switch
← changes sign $(x, y) \rightarrow (-y, x)$ 90°CCW
 270°CW

2. Two adjacent angles create a **linear pair**.

$m\angle 1 = 3x + 4$ and $m\angle 2 = 10x - 6$. What are the **measures of the two angles?**

$3x+4$
 46° | $10x-6$
 213°

$3(14) + 4 = 46^\circ = m\angle 1$
 $10(14) - 6 = 134^\circ = m\angle 2$

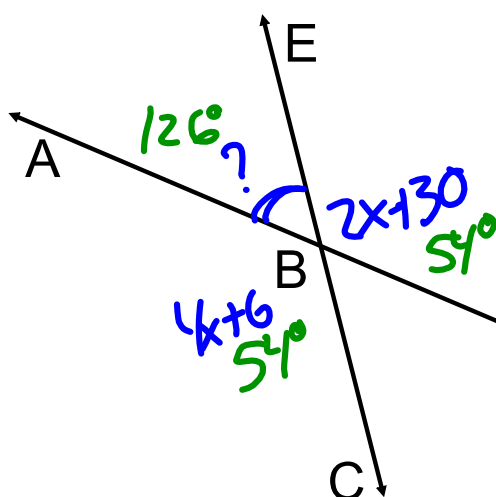
$3x + 4 + 10x - 6 = 180$

$13x - 2 = 180$
 $\underline{+2}$ $\underline{+2}$ $x = 14$

$13x = 182$
 $\frac{13x}{13} = \frac{182}{13}$

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3. $m\angle EBD = 2x + 30$ and $m\angle ABC = 4x + 6$. Find the $m\angle ABE$.



$2x + 30 = 4x + 6$
 $\underline{-2x}$ $\underline{-2x}$

$30 = 2x + 6$
 $\underline{-6}$ $\underline{-6}$

$24 = 2x$
 $\frac{24}{2} = \frac{2x}{2}$

$x = 12$

$2(12) + 30 = 54^\circ$

$180 - 54 = 126^\circ$

Discovery Activity:

1. Draw a straight line w/your straight edge.
2. With the three angles you tore off from the triangle, see if you can lay them down in a way where all 3 angles form a straight line...

**What am I learning today?****Learning Objective 2A.2**

How to explain and use the characteristics of triangles.

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

I can...Add all of the angles in a triangle to 180° and set exterior angles equal to the sum of the two non-adjacent interior angles

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Triangle - A 3-sided polygon

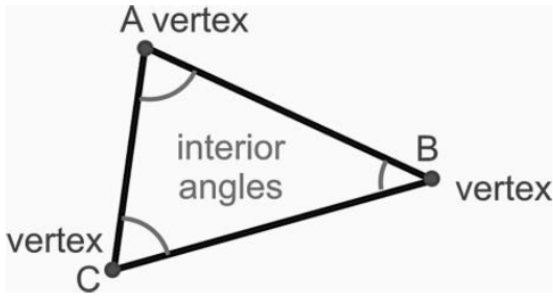
Vertex (Vertices) - The point that connects 2 sides

Adjacent side - Two sides that share a common **VERTEX**

Opposite side - The side opposite a specified **ANGLE**

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***Name** a triangle by using a triangle symbol (Δ) and each vertex's letter.*

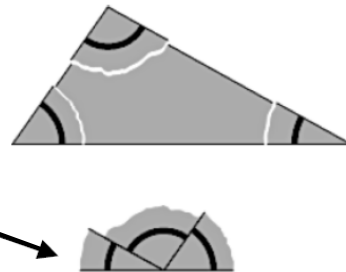


Potential Names:
 ΔABC ΔACB
 ΔCBA ΔCAB
 ΔBCA
 ΔBAC

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Triangle Sum Theorem

3 Interior Angles = 180°



Find the missing angle or variable.

1.

$82 + 27 = 109$
 $180 - 109 = 71^\circ$
 $180 - 27 - 82 = 71^\circ$
 $82 + 27 + 71 = 180$

2.

$4x + 2x - 10 + 4x + 10 = 180$
 $\frac{10x}{10} = \frac{180}{10}$ $x = 18$

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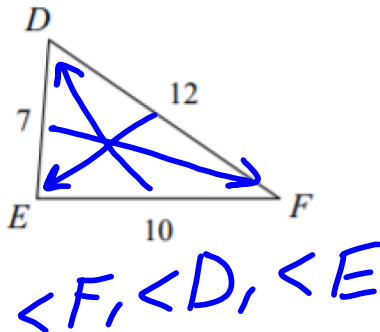
Angle and Side Relationships:

Smallest angle --> Smallest side

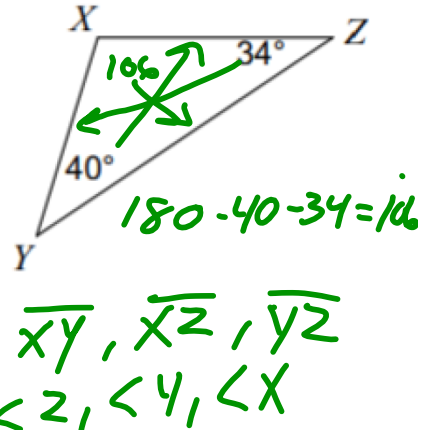
Largest angle --> Largest side

Order the angles or sides in each triangle from smallest to largest.

1.



2.



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Triangle Inequality Theorem

The **SUM** of the lengths of two **SIDES** of a triangle must always be **LARGER** than the length of the third side.

Determine if the three numbers can make a triangle.

1. 2, 3, 7 **X**
 $2 + 3 = 5$
 $5 < 7$

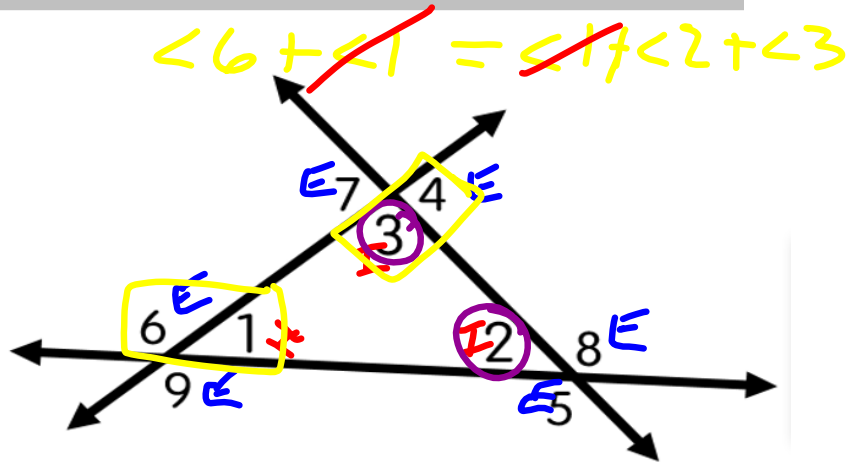
2. 8, 8, 8 **✓**
 $8 + 8 = 16$
 $16 > 8$

3. 9, 6, 2 **X**
 $6 + 2 = 8$
 $8 < 9$

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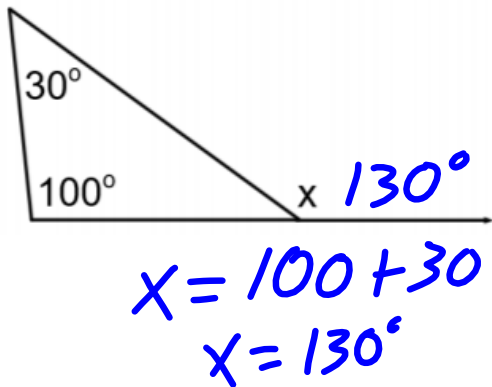
Exterior Angle Theorem

Exterior Angles = Sum of 2 NON-ADJACENT INTERIOR angles

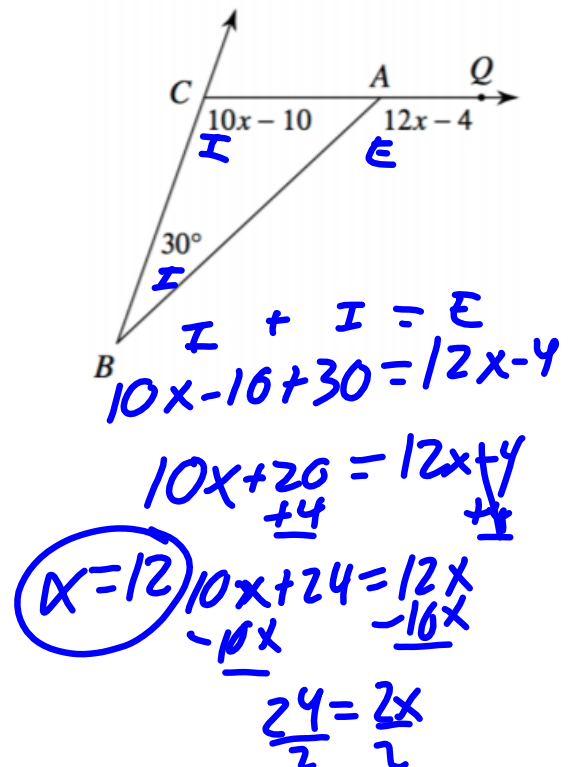


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1. Solve for x.

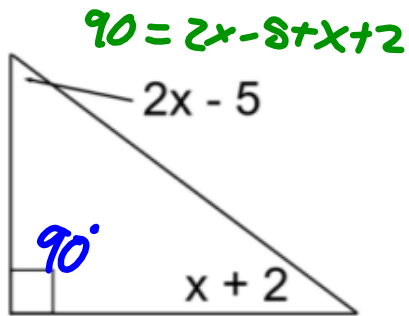


2. Solve for x.



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3. Solve for x.



$$2x - 5 + 90 + x + 2 = 180$$

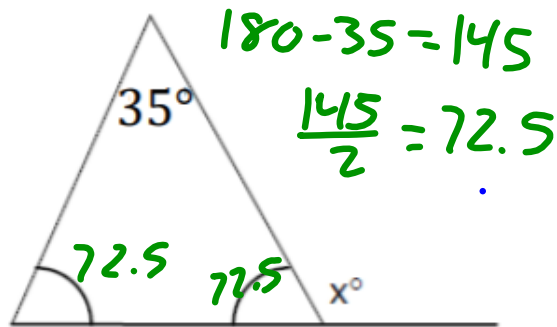
$$3x + 87 = 180$$

$$-87 \quad -87$$

$$\frac{3x}{3} = \frac{93}{3}$$

$$x = 31$$

4. Solve for x.



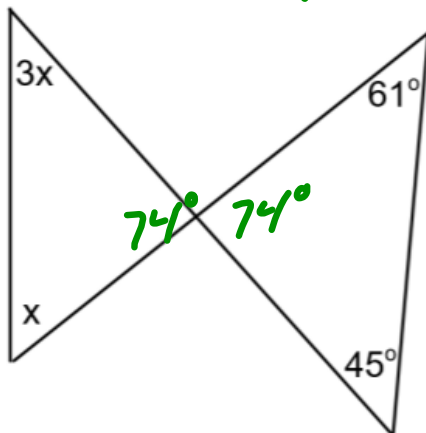
$$x = 35 + 72.5$$

$$x = 107.5$$

or

$$180 - 72.5 = 107.5$$

5. Solve for x. Vertical



$$180 - 61 - 45 = 74$$

$$74 + x + 3x = 180$$

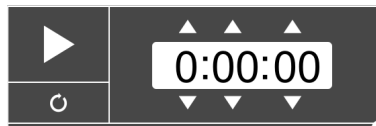
$$74 + 4x = 180$$

$$-74 \quad -74$$

$$\frac{4x}{4} = \frac{106}{4}$$

$$x = 26.5$$

Classwork:



Actively working

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Complete the classwork by using triangle characteristics.

HW: Finish classwork

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