Welcome!! Please grab your ISN and have a seat!
Do this Warmup on paper!!!!!!!!!!!!!!!!!!!!

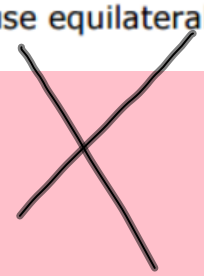
Draw a triangle that fits the description. If the triangle is not possible, tell why.

7 An acute scalene triangle.

8 An obtuse scalene triangle.

9 A right isosceles triangle.

10 An obtuse equilateral triangle.



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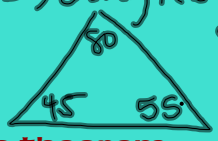
WWK:

triangle angle sum theorem-

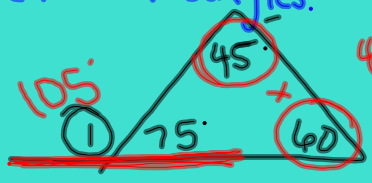
all 3 interior (inside the Δ) angles must add to be 180



80+45+55=180°

exterior angle theorem-

any exterior angle of a triangle is equal to the sum of the 2 remote interior angles.



45+60=105

Oct 4-2:41 PM

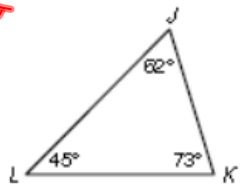
TOC Triangle Angles pg 37-38

4-2 Angle Relationships in Triangles

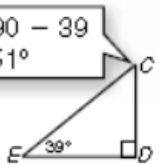
According to the **Triangle Sum Theorem**, the sum of the angle measures of a triangle is 180°.

$m\angle J + m\angle K + m\angle L = 62 + 73 + 45$

$= 180°$



The **corollary** below follows directly from the Triangle Sum Theorem.

Corollary	Example
The acute angles of a right triangle are complementary.	$m\angle C = 90 - 39$ $= 51°$  $m\angle C + m\angle E = 90°$

Oct 4-2:36 PM

TOC Triangle Angles pg 37-38

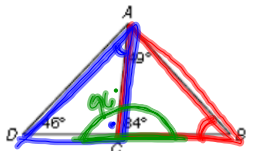
Use the figure for Exercises 1 and 2.

1. Find $m\angle ABC$.

49 + 84 = 133 ; 180 − 133 = 47°

2. Find $m\angle CAD$.

96 + 96 = 142 ; 180 − 142 = 38°

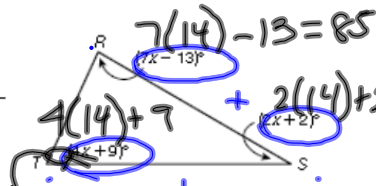


180 − 84 = 96

Use $\triangle RST$ for Exercises 3 and 4.

3. What is the value of x?

$x = 14$



7(14) − 13 = 85 ; 4(14) + 9 ; + 2(14) +

4. What is the measure of each angle?

$\angle R = 85°$, $\angle S = 30°$, $\angle T = 65°$

$7x - 13 + 2x + 2 + 4x + 9 = 180$

$13x = 180$

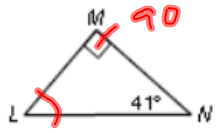
$13x = 182$

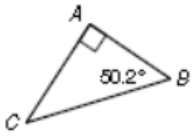
$x = 14$

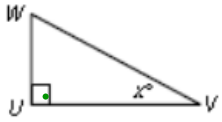
Oct 4-2:40 PM

TOC Triangle Angles pg 37-38

What is the measure of each angle?







5. $\angle L$

49°

90 + 41 = 131

180 − 131 = 49°

6. $\angle C$

39.8°

90 + 50.2 = 140.2

180 − 140.2 = 39.8°

7. $\angle W$

90 − x

90 + x

180 − (90 + x)

180 − 90 − x

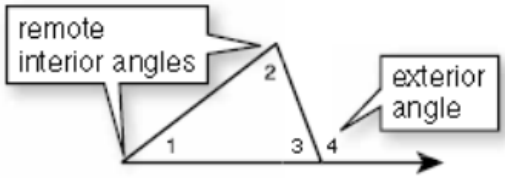
90 − t

Oct 4-2:41 PM

4-2 *Angle Relationships in Triangles* continued

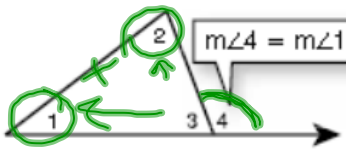
An **exterior angle** of a triangle is formed by one side of the triangle and the extension of an adjacent side.

$\angle 1$ and $\angle 2$ are the remote interior angles of $\angle 4$ because they are not adjacent to $\angle 4$.



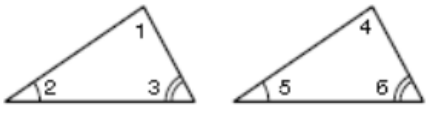
Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of its remote interior angles.



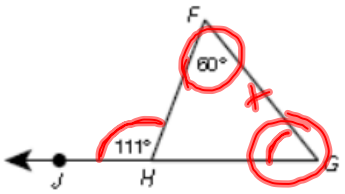
Third Angles Theorem

If two angles of one triangle are congruent to two angles of another triangle, then the third pair of angles are congruent.



Oct 4-2:42 PM

Find each angle measure.



8. m∠G

$111 - 60° = 51°$

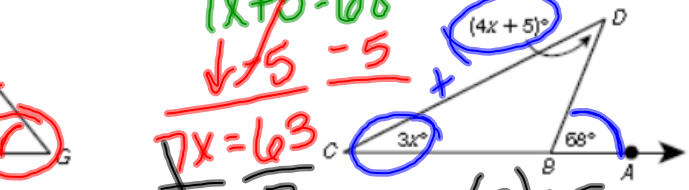
$3x+4x+5=68$

$7x+5=68$

$-5 \quad -5$

$\frac{7x}{7} = \frac{63}{7}$

$x = 9$

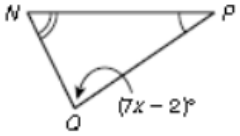


9. m∠D

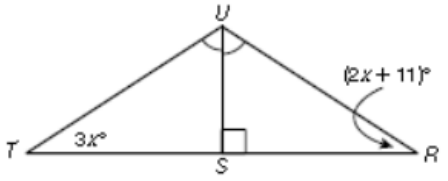
$4(9)+5$

$36+5 = 41°$

Find each angle measure.



10. m∠M and m∠Q



11. m∠T and m∠R

Oct 4-2:42 PM

Homework: Find the missing interior angle measure. Then, find x.

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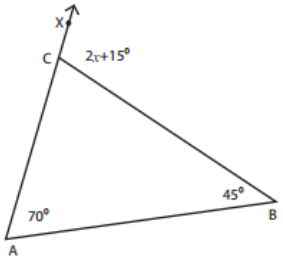

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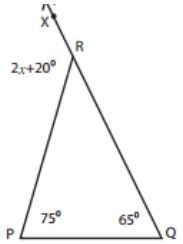
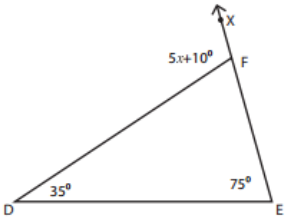


3)



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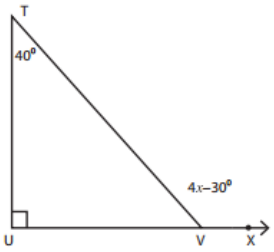

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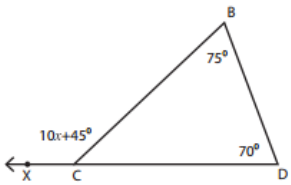

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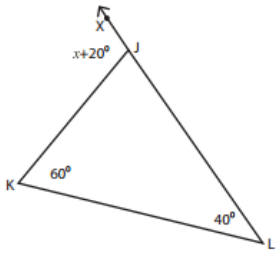

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