Math Virtual Learning

8th Grade Math
Interior/Exterior Angles of a Triangle

April 10, 2020

8th Grade Math
Lesson: April 10

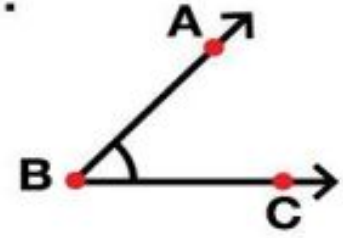
Learning Target:
Student will identify interior and exterior angles of a triangle.

Lesson Includes:
1) Angle Types
2)Triangle Sum Theorem
3) Exterior Angle Theorem

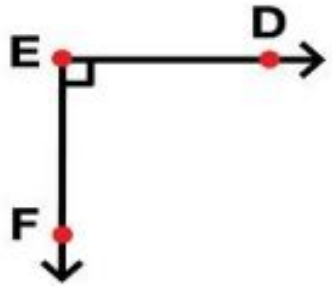
Warm Up Activity

On a piece of paper, identify the following angles.

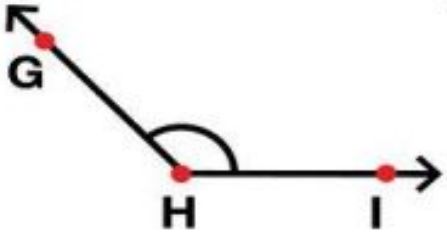
1.



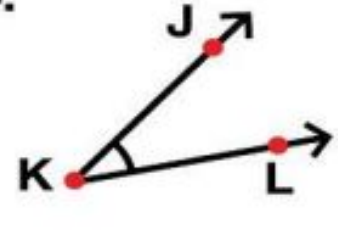
2.



3.

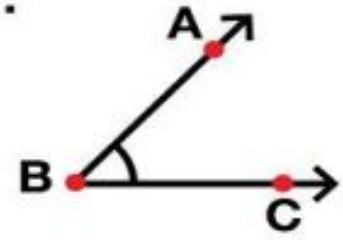


4.

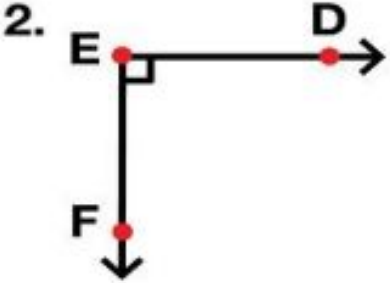


Warm Up Activity Answers

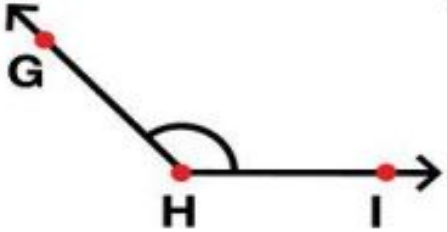
Review the questions from the previous slide.

1. 

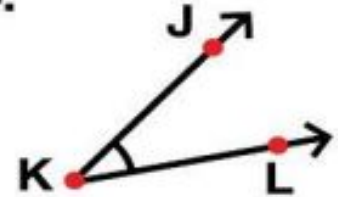
Acute

2. 

Right

3. 

Obtuse

4. 

Acute

Instruction: Types of Angles

Read through the vocabulary and review the diagrams. Then watch the video linked here.

1) Interior Angle: an angle inside a shape

2) Exterior Angle: is an angle outside of a shape, made by the side of a shape and a line drawn out from an adjacent side

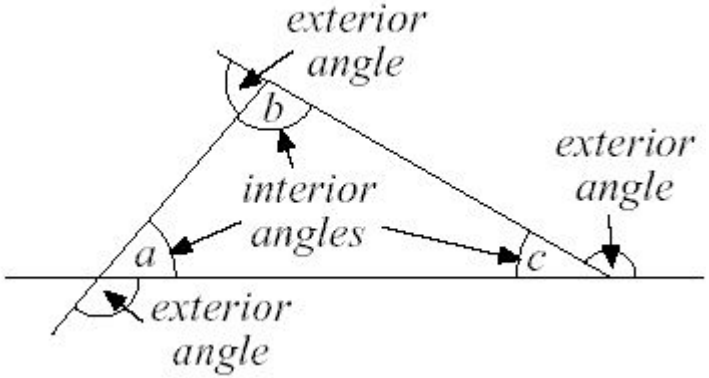
3) Acute Angle: an angle that's less than 90 degrees

4) Obtuse Angle: an angle that is greater than 90 degrees

5) Right Angle: a 90 degree angle

6) Complementary Angle: two angles that when added together equal 90 degrees

7) Supplementary Angle: two angles that when added together equal 180 degree

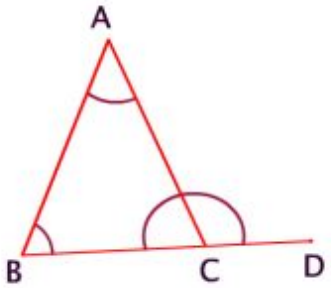


Today we are mainly focusing on Interior and Exterior Angles!

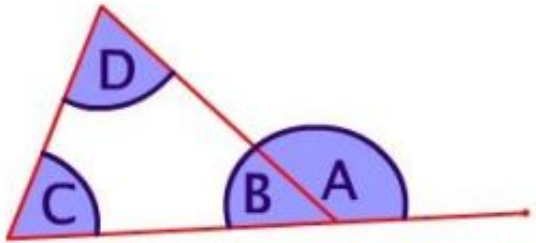
Practice: Types of Angles

On a piece of paper: Identify the exterior and interior angles shown in the problems.

1)



2)



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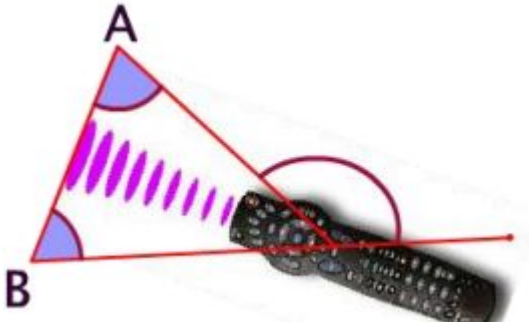
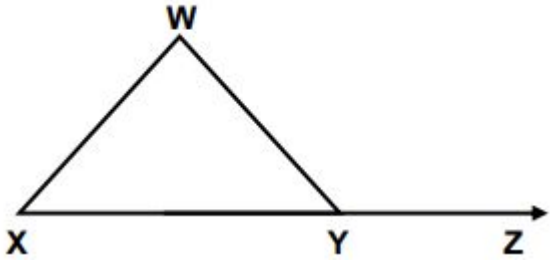


4)



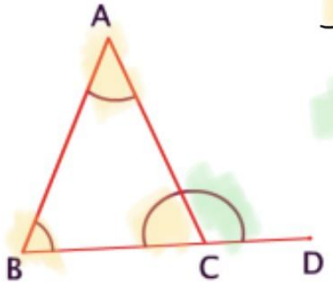
Practice: Types of Angles ANSWERS

On a piece of paper: Identify the exterior and interior angles shown in the problems.

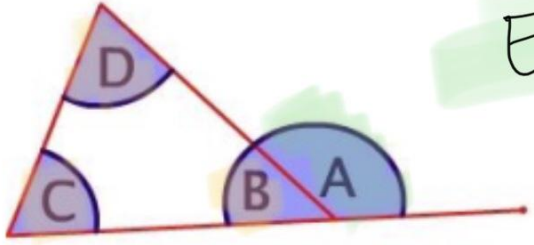
Interior = inside

Exterior = outside

1)



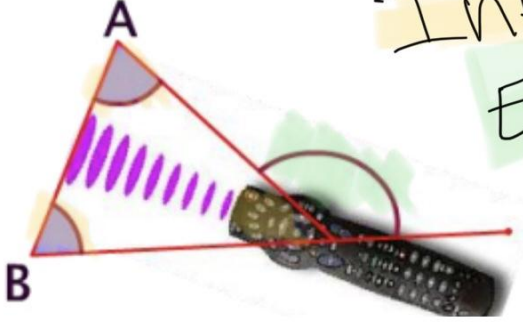
2)



Interior

Exterior

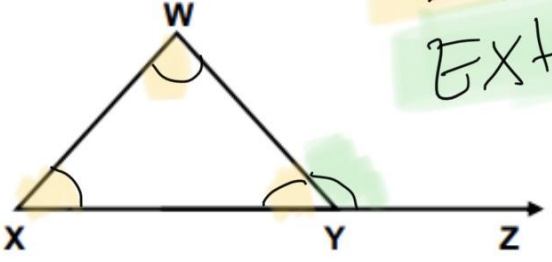
3)



Interior

Exterior

4)



Interior

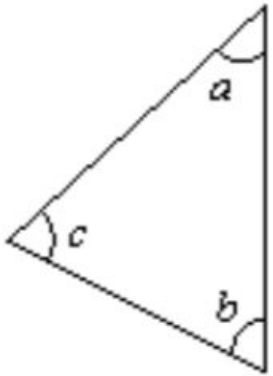
Exterior

Instruction: Triangle Sum Theorem

Read through the theorem and steps. Watch the provided video here. Then review the examples on the next slide.

Theorem:

The triangle sum property states that the sum of the three interior (inside the triangle) angles in a triangle is always 180 degrees.



$$a + b + c = 180°$$

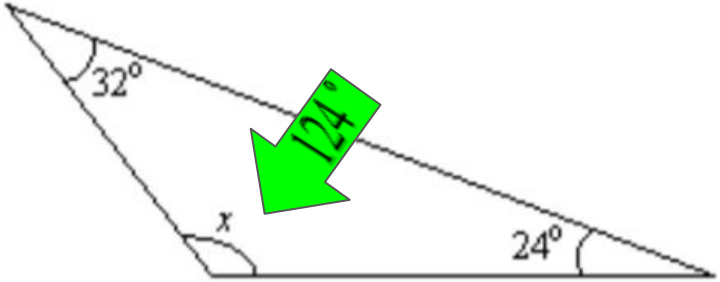
Steps:

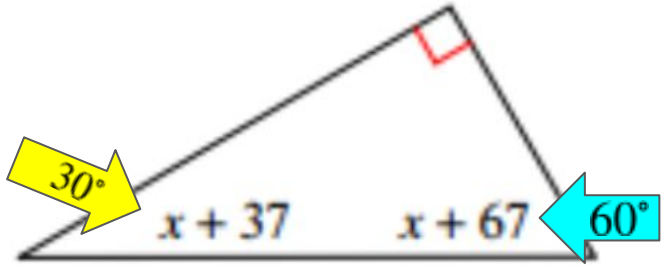
1) Write an equation that adds all three angle measurements.
2) Set the equation equal to 180 degrees.
3) Solve for the variable.
4) Plug the value of the variable (the answer) back into any angle expression that you need to find the value of.

Don't forget your steps for solving equations!

Instruction: Triangle Sum Theorem

Review the examples. Directions: Solve for the variable, then find the missing angle(s).





$32 + 24 + x = 180$

$56 + x = 180$

$-56 \quad -56$

$x = 124 \rightarrow (124°)$

$x + 37 + x + 67 + 90 = 180$

$2x + 194 = 180$

$-194 \quad -194$

$\frac{2x}{2} = \frac{-14}{2}$

$x = -7$

$x + 37$

$-7 + 37$

$(30°)$

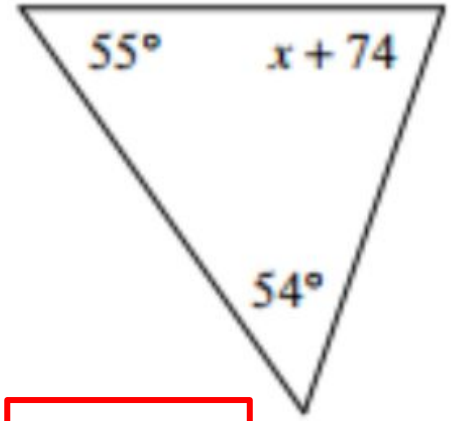
$x + 67$

$-7 + 67$

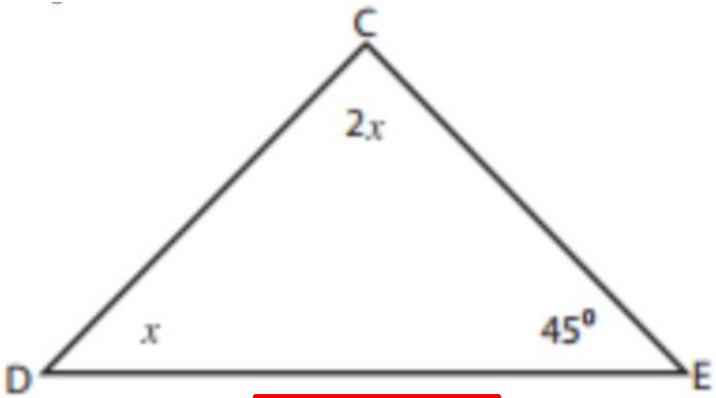
$(60°)$

Practice: Triangle Sum Theorem

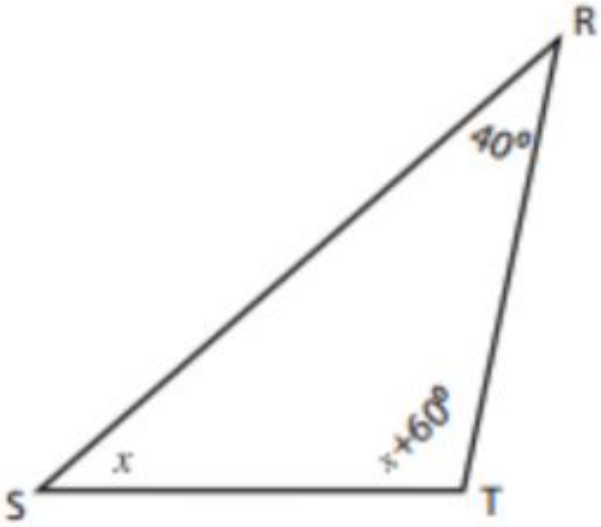
On a piece of paper: Solve for the variable, then find the missing angle(s).



Question 1



Question 2



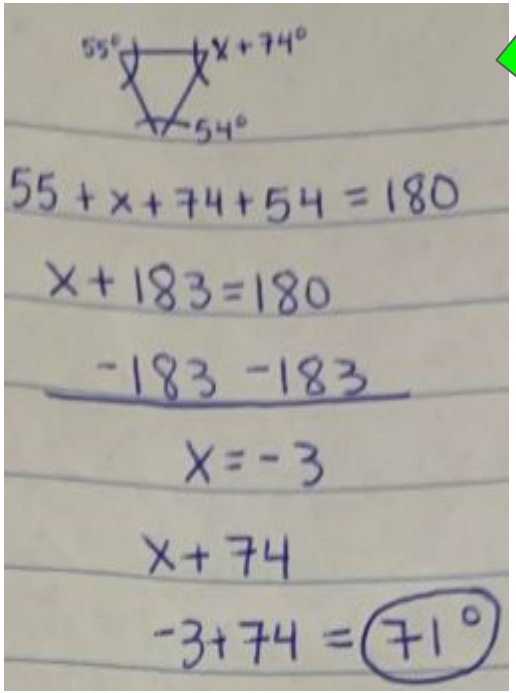
Question 3

Practice: Triangle Sum Theorem Answers

Check your work from the previous slide. Additional practice linked on the last slide.

Question 1

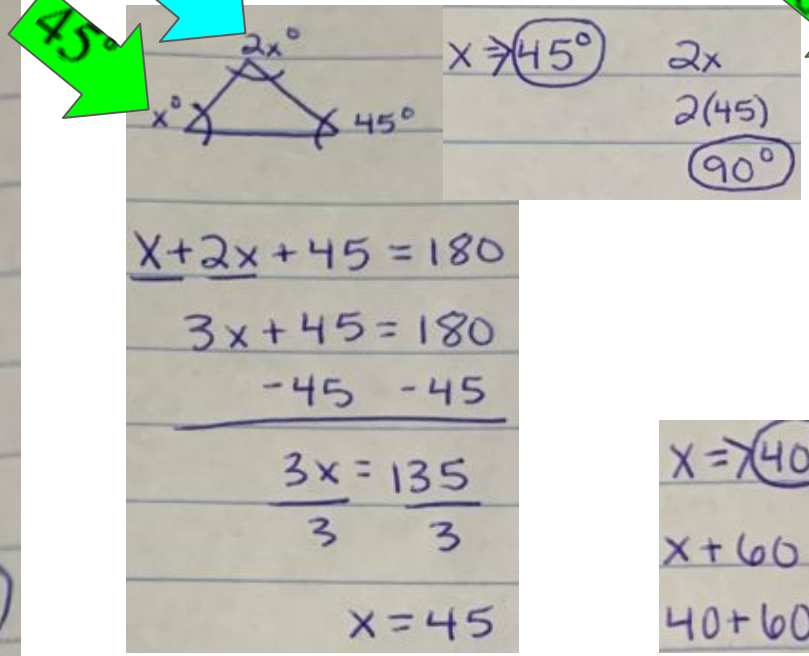
71°



Question 2

90°

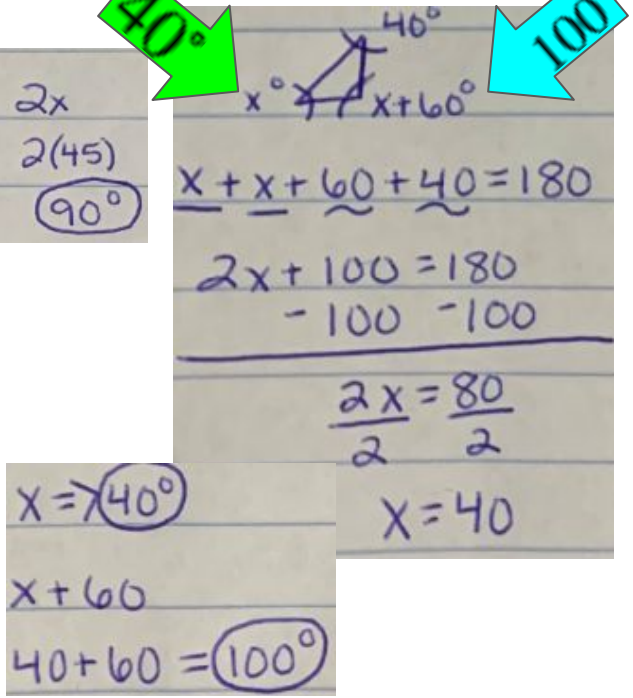
45°



Question 3

40°

100°

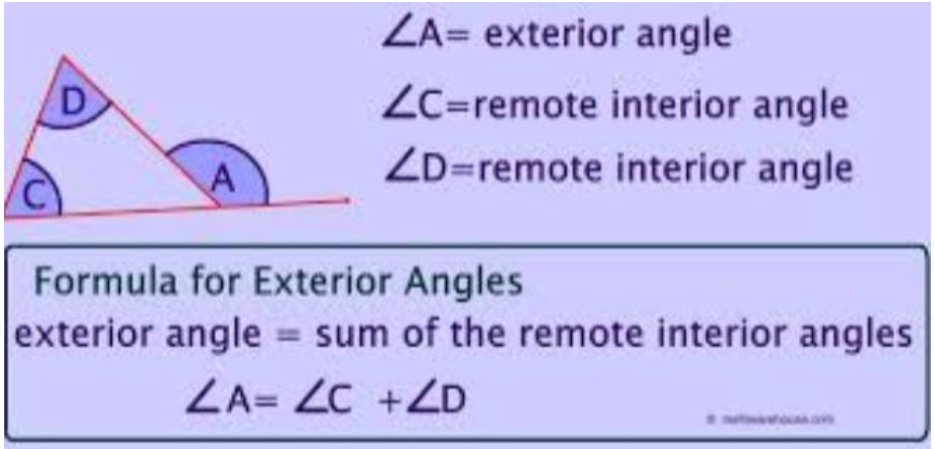


Instruction: Exterior Angle Theorem

Read through the theorem and steps. Watch the provided video here. Then review the examples on the next slide.

Theorem:

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



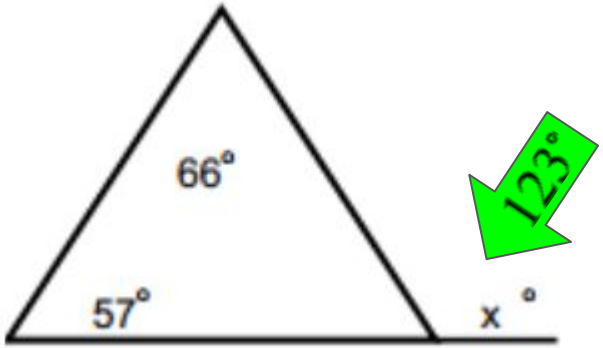
Steps:

What if you are not given all the angles?

1) Write an equation: remote interior angle + remote interior angle = exterior angle
2) Solve for the variable.
3) Plug the value of the variable (the answer) back into any angle expression that you need to find the value of.

Instruction: Exterior Angle Theorem

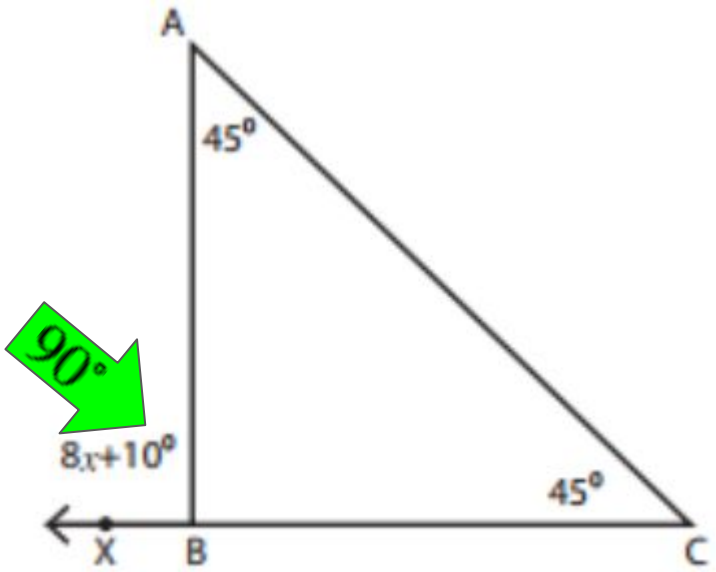
Review the examples.



57 + 66 = x

123 = x

(123°)



45 + 45 = 8x + 10

90 = 8x + 10

−10 −10

80 = 8x

$\frac{80}{8} = \frac{8x}{8}$

10 = x

8x + 10

8(10) + 10

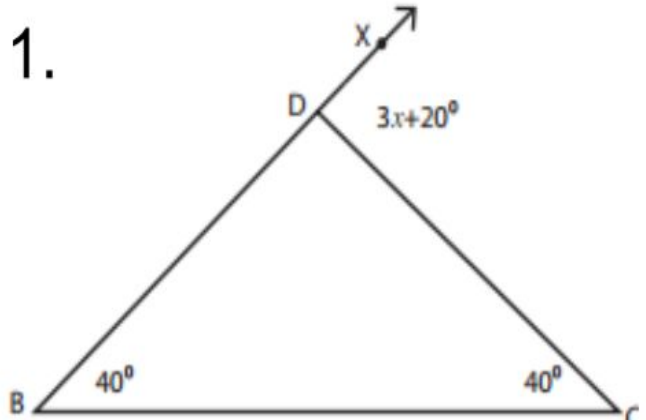
80 + 10

(90°)

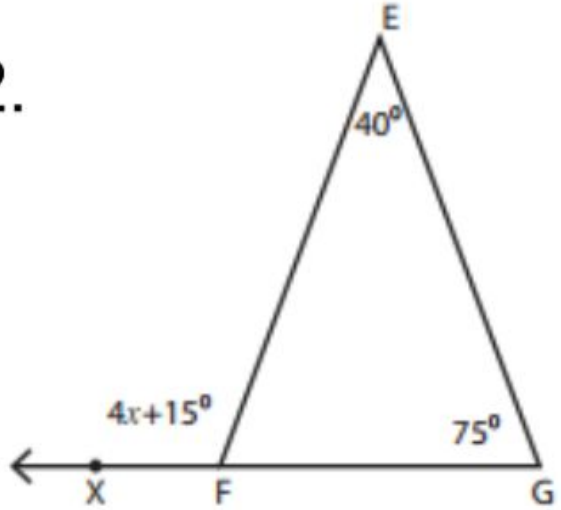
Practice: Exterior Angle Theorem

On a piece of paper: Solve for the variable, then find the missing angle(s).

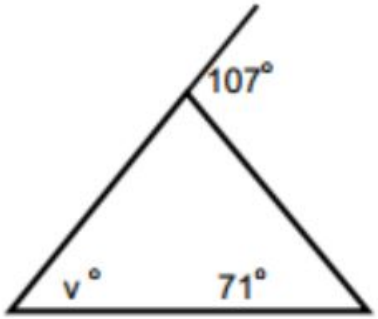
1.



2.



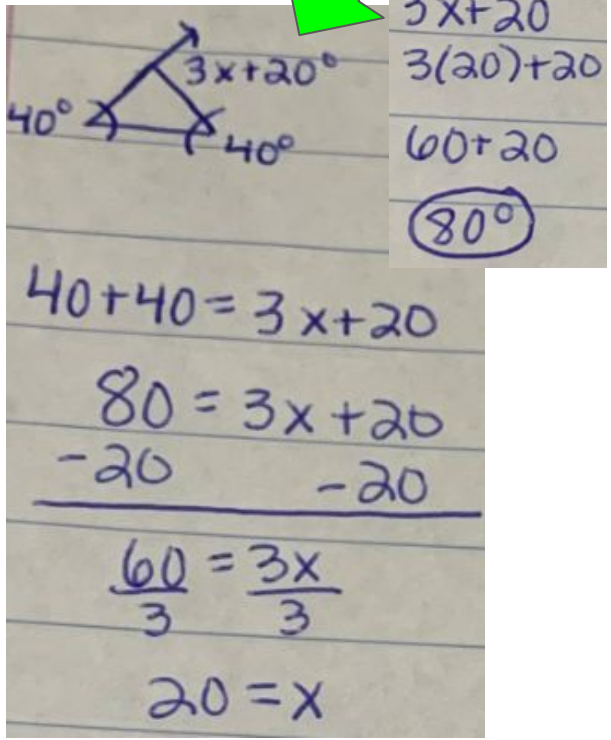
3.



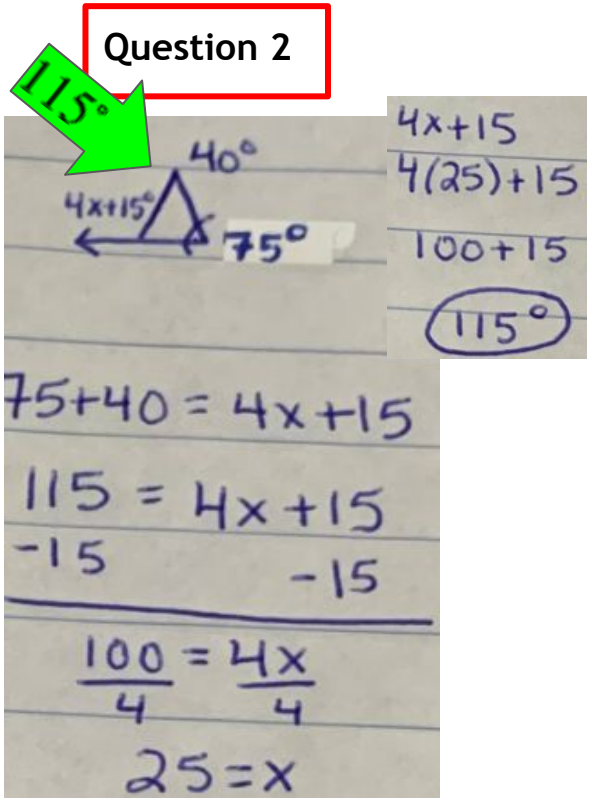
Practice: Exterior Angles Theorem Answers

Check your work from the previous slide. Additional practice linked on the last slide.

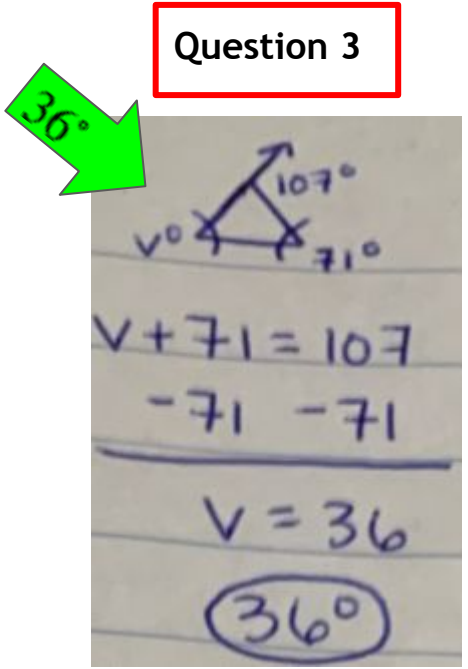
Question 1



Question 2



Question 3



Additional Practice:

Click on the links below to get additional practice and to check your understanding!

Types of Angles

Triangle Sum Theorem

Exterior Angle Theorem

* May need to click twice for the links *