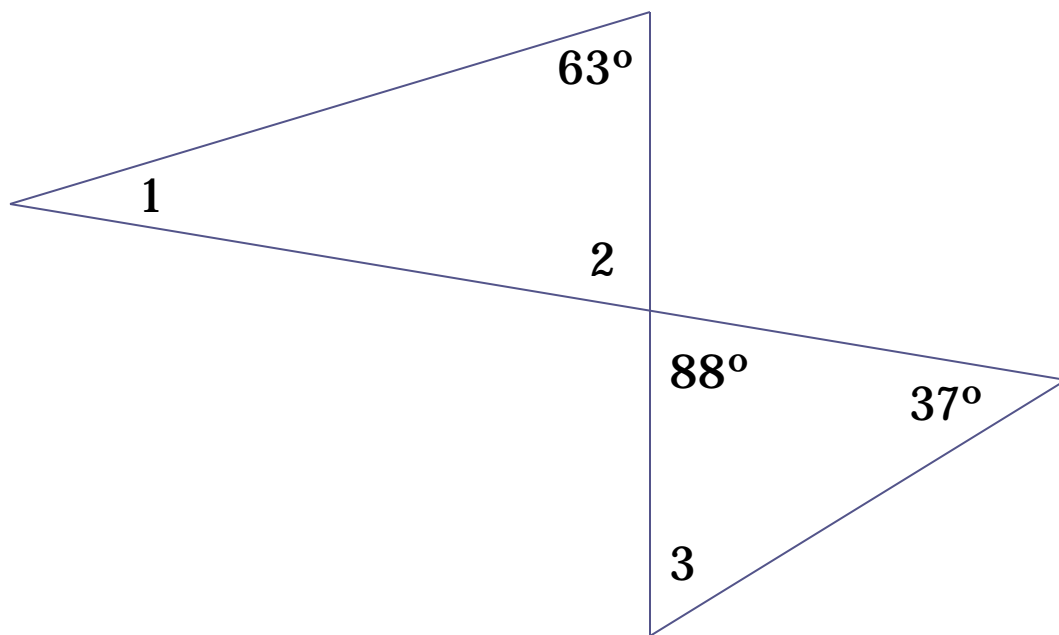


Warm-Up: IN NOTES NOTEBOOK for today

Find each measure.



Essential Skill 2: Congruent Triangles

LT 2.2 Angles of Triangles

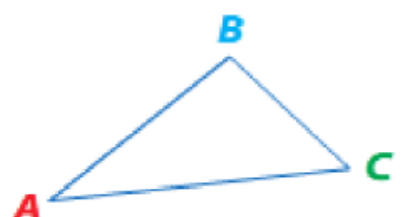
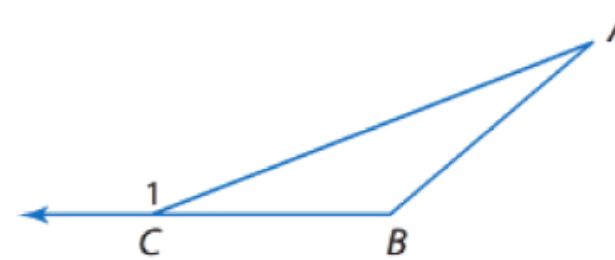
A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the slide.

Learning Objective

I will be able to . . .

- * Apply the Triangle-Angle Sum theorem.**
- * Apply the Exterior Angle Theorem.**

RECALL

Vocabulary Term	Definition/Description/Example	Drawing
Triangle-Angle Sum theorem	The sum of the measures of the angles of a triangle is 180° . $m\angle A + m\angle B + m\angle C = 180$	 A diagram of a triangle with vertices labeled A, B, and C. Vertex A is at the bottom left, B is at the top, and C is at the bottom right. The labels are in different colors: A is red, B is blue, and C is green.
Exterior Angle Theorem	The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles. $m\angle A + m\angle B = m\angle 1$	 A diagram of a triangle with vertices labeled A, B, and C. Vertex A is at the top right, B is at the bottom right, and C is at the bottom left. An exterior angle is formed by extending the side BC to the left, and this exterior angle is labeled with the number 1.

Prove Triangle-Angle Sum Theorem

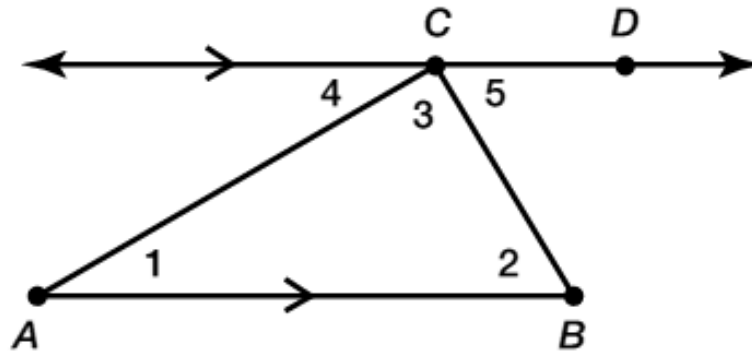
Work with your partner for 6 minutes.

Work with your table for 6 minutes.

Share out with the class.

The **Triangle Sum Theorem** states: “the sum of the measures of the interior angles of a triangle is 180° .”

2. Prove the Triangle Sum Theorem using the diagram shown.



Given: Triangle ABC with $\overline{AB} \parallel \overline{CD}$

Prove: $m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$

1) What information is given? What do you know?

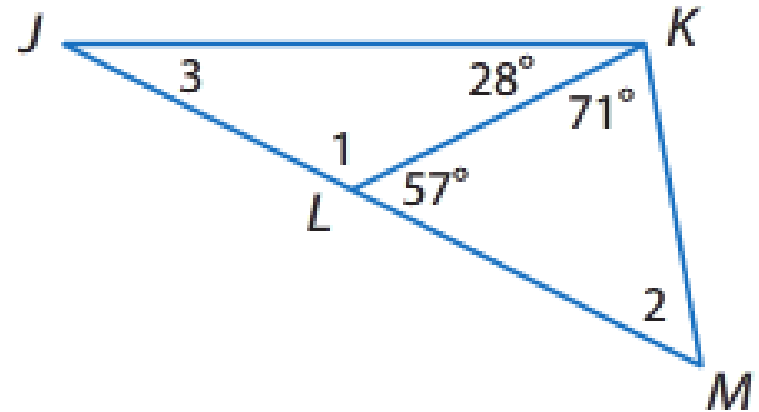
2) What are you trying to prove?

****NOW prove this theorem*****

Example 1b

Find the measures of each numbered angle.
Justify your answer.

Answer:

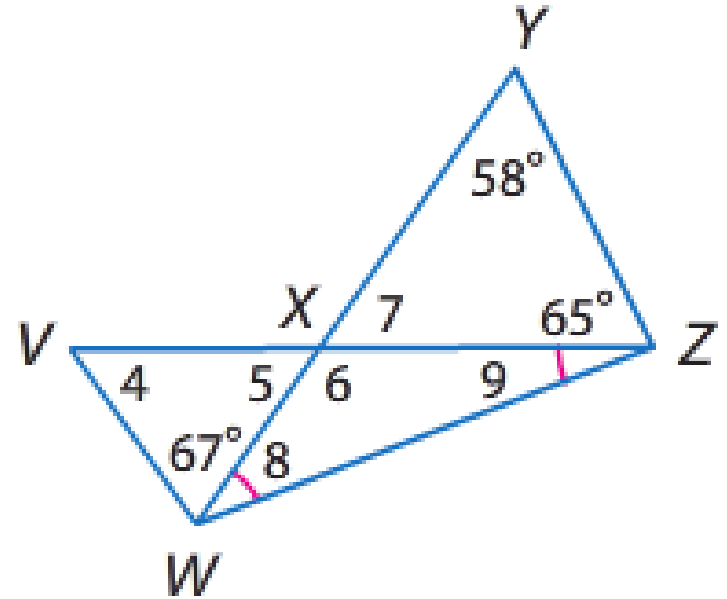


$$m\angle 1 = 123, m\angle 2 = 52, m\angle 3 = 29$$

Example 1c

Find the measures of each numbered angle.
Justify your answer.

Answer:



1B. $m\angle 4 = 56$, $m\angle 5 = 57$, $m\angle 6 = 123$,
 $m\angle 7 = 57$, $m\angle 8 = m\angle 9 = 28.5$

Prove Exterior Angle theorem

Work with your partner for 6 minutes.

Work with your table for 6 minutes.

Share out with the class.

Partner Work

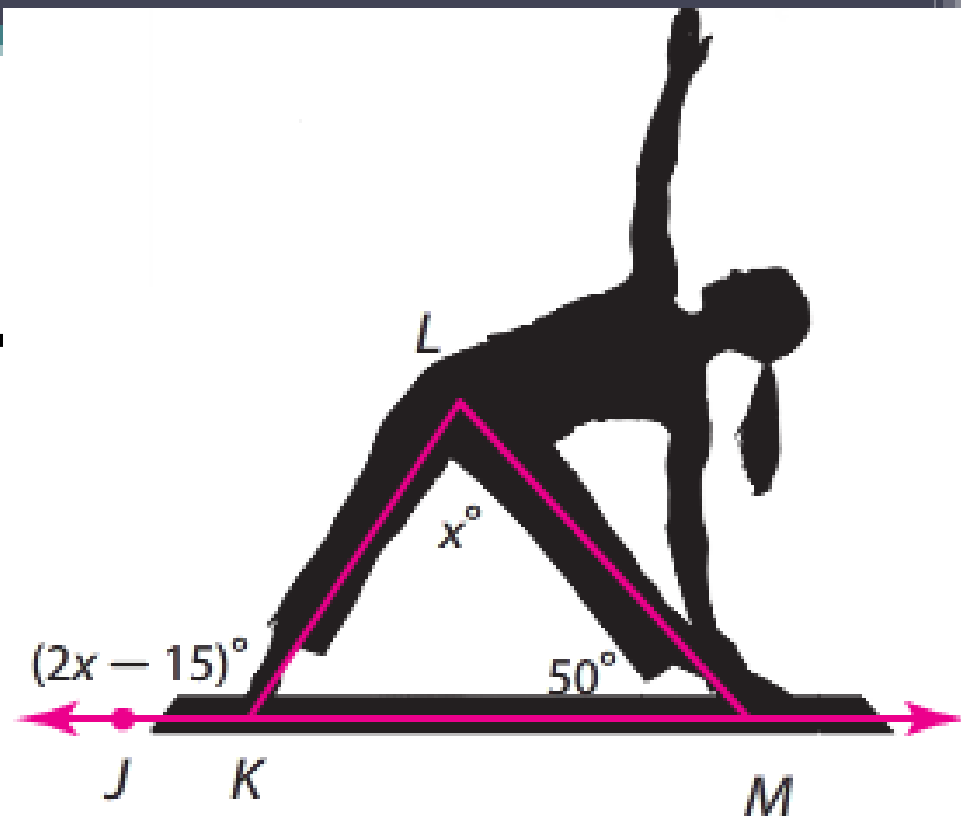
Problem 3: Exterior Angles handout

Work with your partner to answer the following questions.

Example 2a

Find the measure of $\angle JKL$
Triangle Pose shown.
Justify your answer.

Answer:



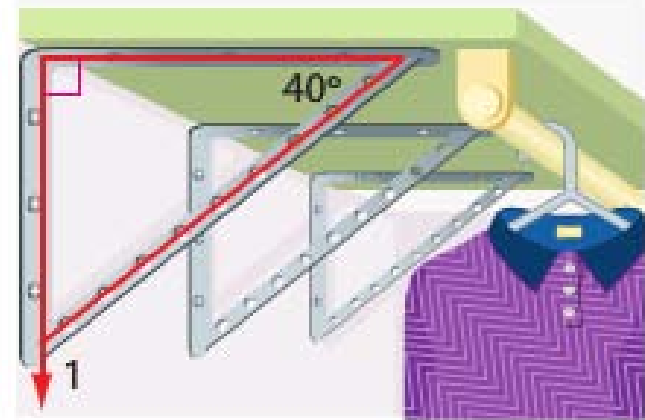
$$x = 65$$

$$m\angle JKL = 115$$

Example 2b

What is the measure of angle 1, and the angle that the bracket makes with the wall. Justify your answer.

Answer:

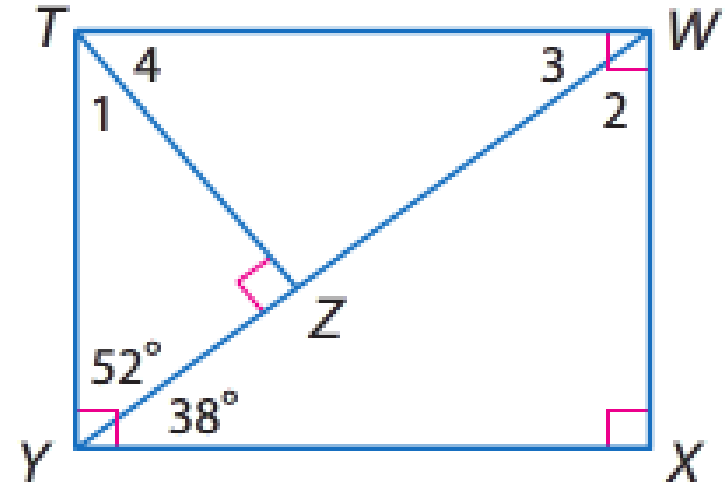


90 and 130

Example 3a

Find the measure of each numbered angle.
Justify your answer.

Answer:



$$m\angle 1 = 38$$

$$m\angle 2 = 52$$

$$m\angle 3 = 38$$

$$m\angle 4 = 52$$

Homework

Class: Complete Skills Practice - all

Honors: Complete Honors Skills Practice - all