Geo - Day 2 Notes

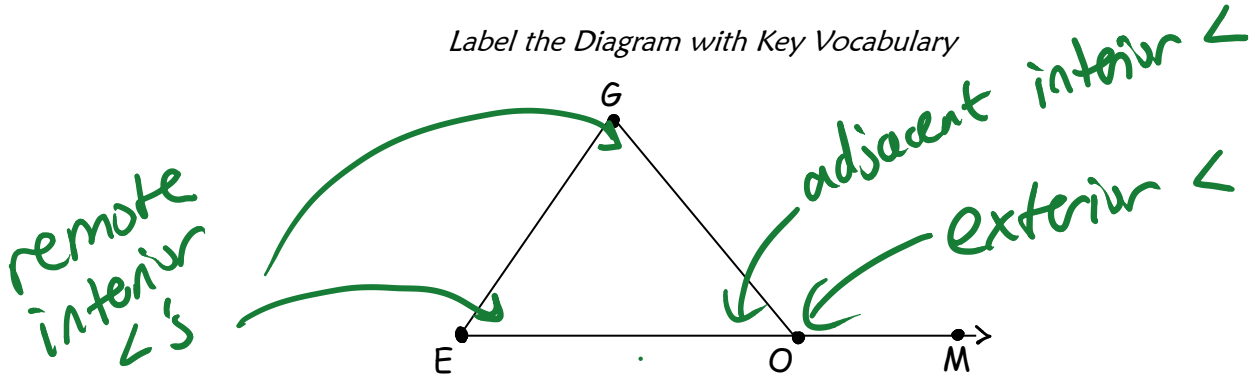
4.3: Angle Relationships in Triangles

- ❒ 4.3 Target A: Find the measure of interior angles of a triangle.
- ❒ 4.3 Target B: Find the measure of exterior angles of a triangle.

What are Exterior Angles?

The exterior angle of a triangle is formed whenever is side of the triangle is extended to form an angle supplementary to the adjacent interior angle.

Label the Diagram with Key Vocabulary

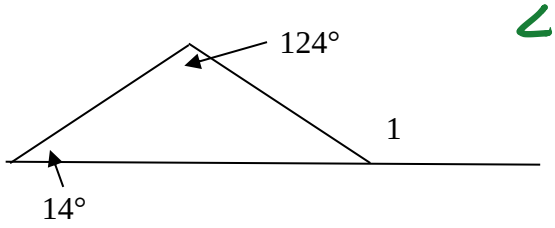


Click on the link below to explore the relationship between the exterior angle and the remote interior angles of a triangle: https://ggbm.at/Drayd3kY

Make a conjecture about the relationship between the exterior angle and the remote interior angles below:

Have kids do this! ☺

Based on your conjecture, find the measure of ∠ 1 in the picture below.



$\angle 1 = 124 + 14$

$\angle 1 = 138°$

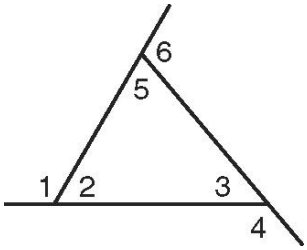
Exterior Angle Theorem:

The exterior ∠ of a △ is equal to the sum of the remote interior ∠'s.

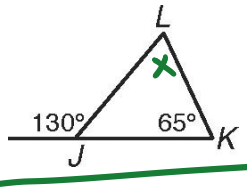
Let's Practice!

Name all the angles that fit the definition of each vocabulary word.

1. exterior angles ∠1, ∠4, ∠6
2. remote interior angles to ∠6 ∠2, ∠3
3. interior angles ∠2, ∠3, ∠5



4. Find the measure of $\angle KLJ$ & $\angle LJK$



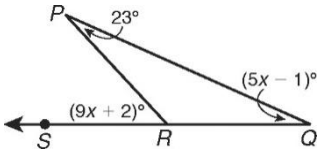
$130 = x + 65$

$x = 65$

$m\angle KLJ = 65°$

$m\angle LJK = 50°$

5. Find the measure of $\angle PRS$



$9x + 2 = 5x - 1 + 23$

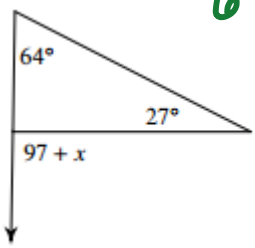
$9x + 2 = 5x + 22$

$4x = 20$

$x = 5$

$m\angle PRS = 9(5) + 2 = 47°$

6. Find x.

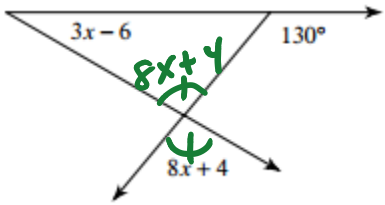


$64 + 27 = 97 + x$

$91 = 97 + x$

$x = -6$

7. Find x.



$3x - 6 + 8x + 4 = 130$

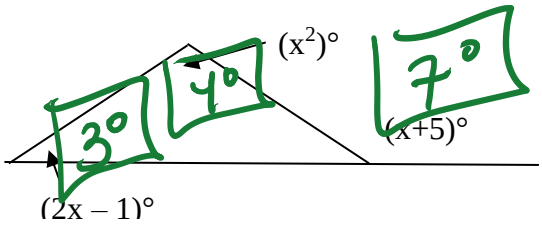
$11x - 2 = 130$

$11x = 132$

$x = 12$

Let's take it up a notch!

8. Find x and the measure of each angle.



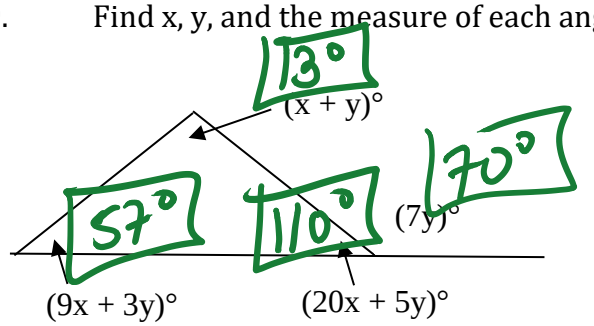
$x^2 + 2x - 1 = x + 5$

$x^2 + x - 6 = 0$

$(x + 3)(x - 2) = 0$

$x = -3, x = 2$

9. Find x, y, and the measure of each angle.



$9x + 3y + x + y = 7y$

$10x + 4y = 7y$

$10x - 3y = 0$

$20x + 5y + 7y = 180$

$20x + 12y = 180$

$10x + 6y = 90$

$9y = 90$

$y = 10$

$10x - 30 = 0$

$10x = 30$

$x = 3$