

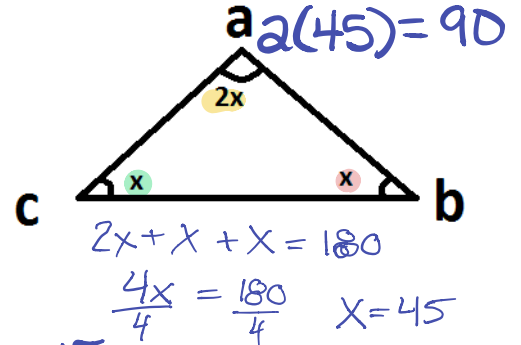
Pg. 7

8-3 Exterior Angle Theorem

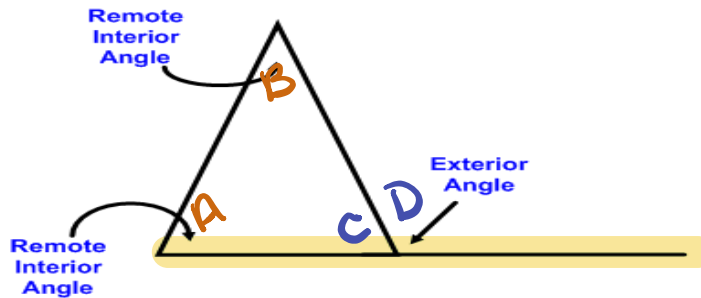
Learning Target: I can determine the angle measure of interior and exterior angles of a triangle.

DO NOW: Use the diagram below to answer the following:

- (a) What type of triangle is this? Right Isosceles Triangle
- (b) Find the value of x . $x = 45$
- (c) Find the measure of each angle:
- $\angle a =$ 90 $\angle b =$ 45 $\angle c =$ 45



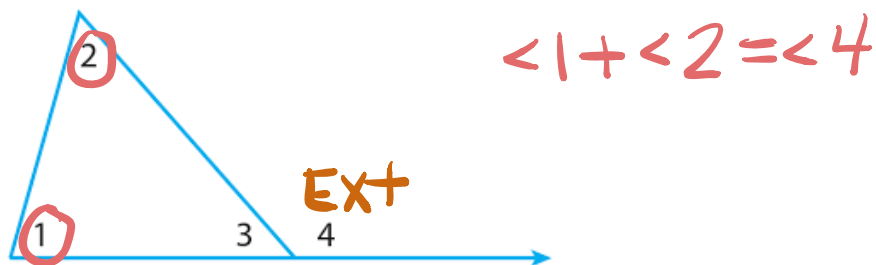
An **exterior angle** of a triangle is formed by one side of the triangle and the extension of an adjacent side. Each exterior angle has **2 remote interior angles**. A **remote interior angle** is one that is not touching the exterior angle.



There is a special relationship between the measure of an exterior angle & its two remote interior angles.

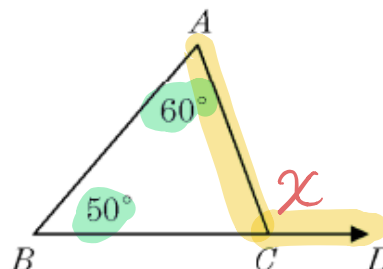
The **exterior angle theorem** states that:

The **exterior** angle is equal to the **sum** of its two remote **interior** angles.

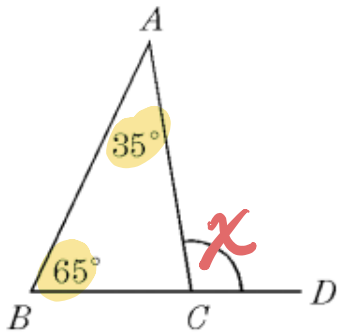


Exercise 1: - In the accompanying diagram, $\angle ACD$ is an exterior angle of $\triangle ABC$. If $m\angle A = 60$ and $m\angle B = 50$, find $m\angle ACD$.

$x = 60 + 50$
 $x = 110^\circ$



Exercise 2- In the accompanying diagram, $\angle ACD$ is an exterior angle of $\triangle ABC$. If $m\angle A = 35$ and $m\angle B = 65$, find $m\angle ACD$

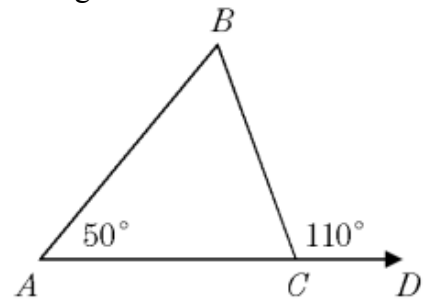


$$x = 65 + 35$$

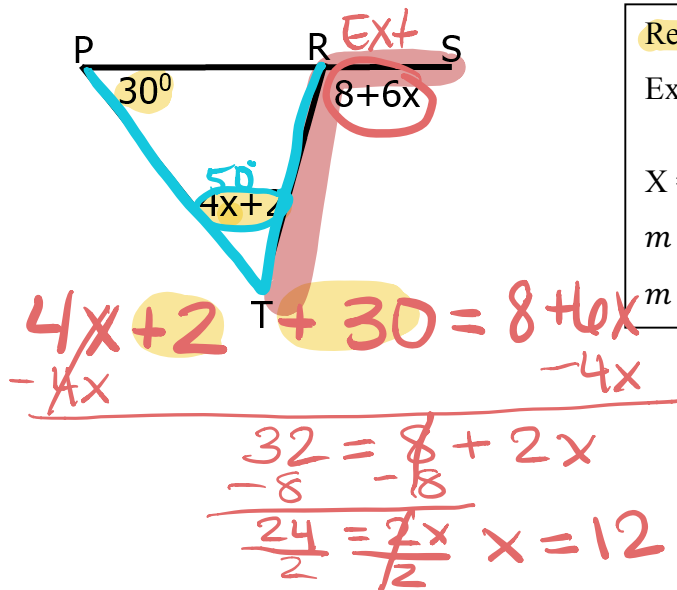
$$x = 100$$

$$\angle ACD = 100^\circ$$

Exercise 3- In the accompanying diagram of $\triangle ABC$, the measure of exterior angle BCD is 110 and $m\angle BAC = 50$. Find $m\angle ABC$



Exercise 4- State the angles, using three letter notation & use algebra to solve for x and find the missing angles.



Remote Angles $\angle PTR$ & $\angle RPT$
 Exterior Angle $\angle TRS$
 $x = 12$
 $m\angle PTR = 4(12) + 2 = 50^\circ$
 $m\angle SRT = 80^\circ$

WHODUNNIT? Activity

Exterior Angle Theorem – Lesson Summary:

1. What is an exterior angle?
2. How can you find the measure of an exterior angle to a triangle?