Exterior Angle Theorem for Triangles

Name _____

Date _____ Period _____

Exterior Angle

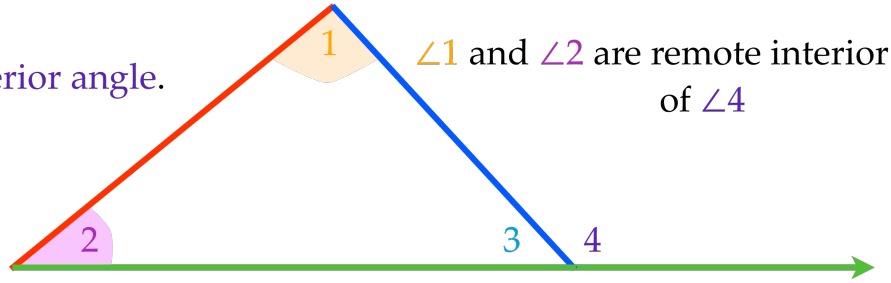
An exterior angle is formed by one side of a triangle and the extension of another side.

∠4 is an exterior angle.

Remote Interior Angles

The remote interior angles are the non-adjacent angles to the given exterior angle.

∠1 and ∠2 are remote interior angles of ∠4



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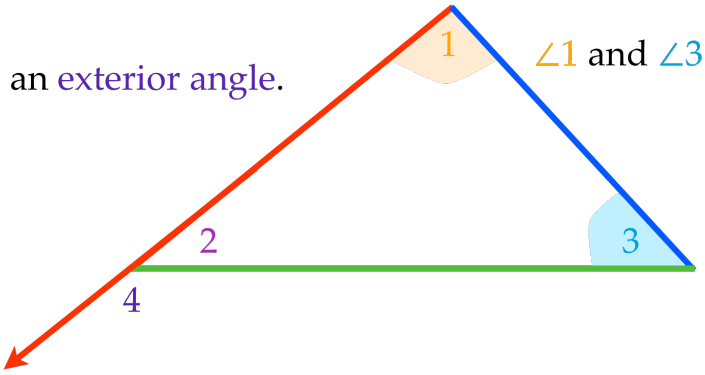

Exterior Angle

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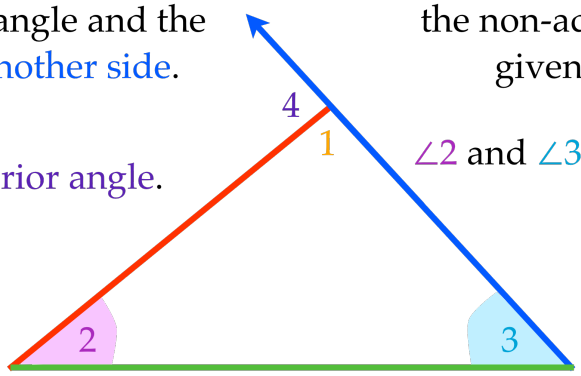
Remote Interior Angles

The remote interior angles are the non-adjacent angles to the given exterior angle.

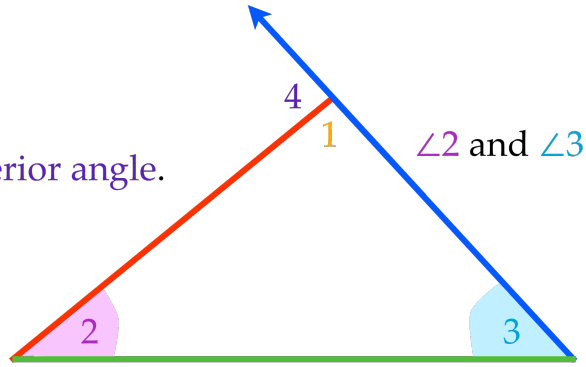
∠2 and ∠3 are remote interior angles of ∠4



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

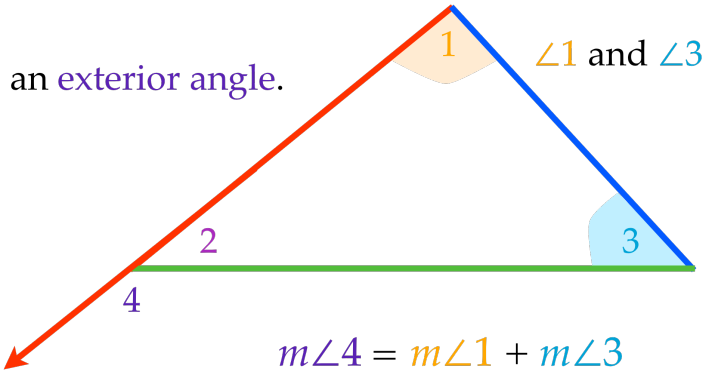
∠4 is an exterior angle.

∠2 and ∠3 are remote interior angles of ∠4



$$m\angle 4 = m\angle 2 + m\angle 3$$

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

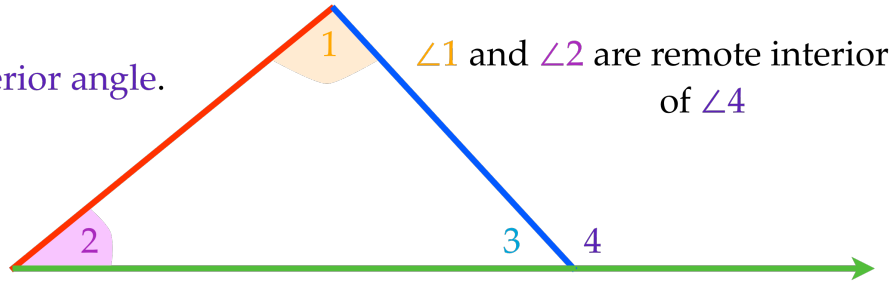


∠4 is an exterior angle.

∠1 and ∠3 are remote interior angles of ∠4

$m\angle 4 = m\angle 1 + m\angle 3$

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



∠4 is an exterior angle.

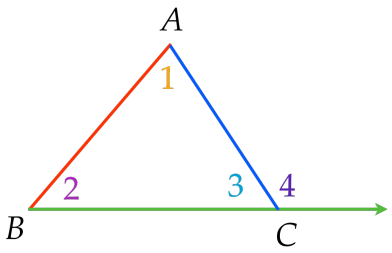
∠1 and ∠2 are remote interior angles of ∠4

$m\angle 4 = m\angle 1 + m\angle 2$

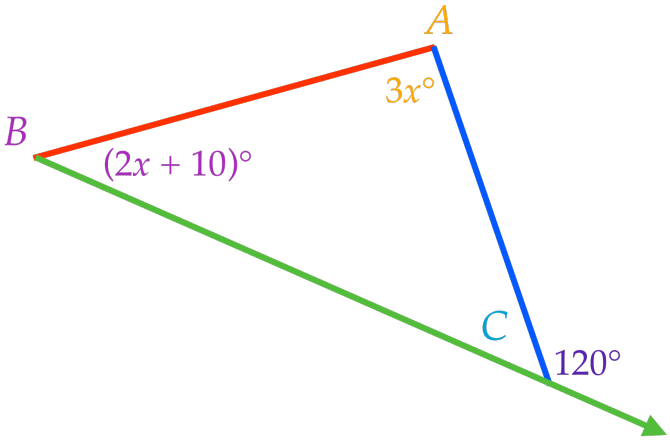
Statements	Reasons

Given: ΔABC

Prove: $m\angle 4 = m\angle 2 + m\angle 1$



Determine the $m\angle A$, $m\angle B$, and $m\angle C$.



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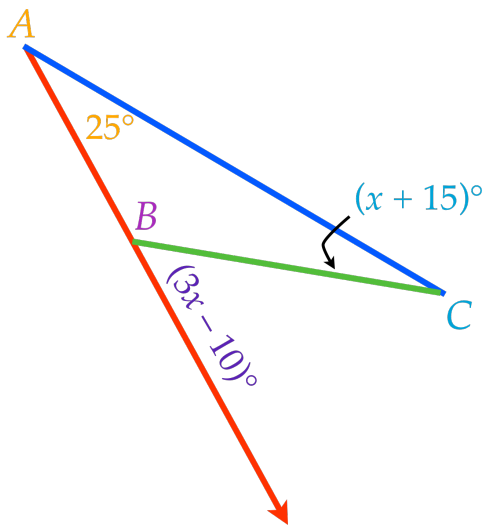
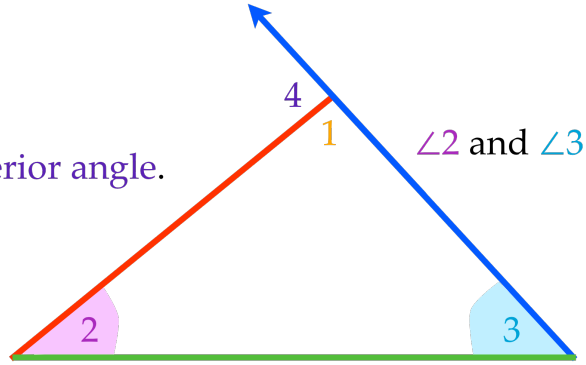


The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

$\angle 4$ is an exterior angle.



$\angle 2$ and $\angle 3$ are remote interior angles of $\angle 4$

$$m\angle 4 = m\angle 2 + m\angle 3$$