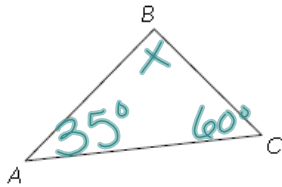


TOC 79 U5- Triangle Theorems

The sum of the measures of the angles in a triangle is 180° .



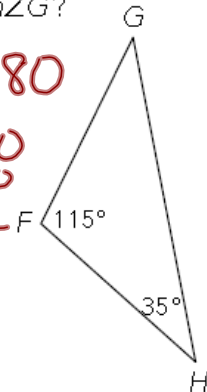
$$\begin{array}{r} 35 + 60 + x = 180 \\ 95 + x = 180 \\ -95 \quad -95 \\ \hline x = 85 \end{array}$$

Example - What is $m\angle G$?

$$m\angle G + 115 + 35 = 180$$

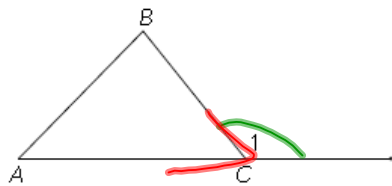
$$\begin{array}{r} m\angle G + 150 = 180 \\ -150 \quad -150 \\ \hline \end{array}$$

$$\boxed{m\angle G = 30^\circ}$$



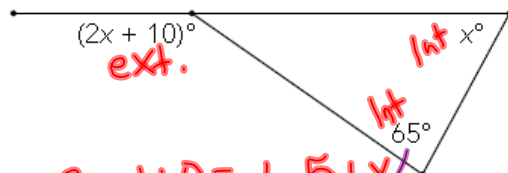
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The measure of an exterior angle of a triangle equals the sum of the measures of the 2 non-adjacent interior angles.



$$\angle x = \angle A + \angle B$$

Example - Find the value of x.



$$\begin{array}{r} 2x + 10 = 65 + x \\ -x \quad -x \\ \hline \end{array}$$

$$\begin{array}{r} x + 10 = 65 \\ -10 \quad -10 \\ \hline \end{array}$$

$$\boxed{x = 55}$$

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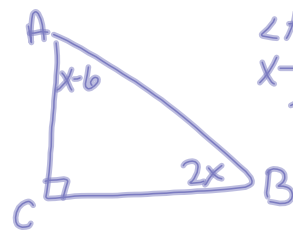
If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

Each angle of an equilateral triangle has a measure of 60° .

In a triangle, there can be at most one obtuse angle or one right angle.

The acute angles of a right triangle are complementary.

Example – Find the measures of the acute angles of the right triangle ABC if $m\angle A = x - 6$ and $m\angle B = 2x$.



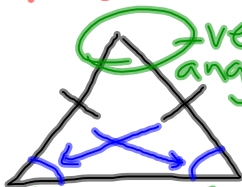
$$\begin{aligned} \angle A + \angle B &= 90 \\ x - 6 + 2x &= 90 \\ 3x - 6 &= 90 \\ \cancel{-6} + 6 & \\ \hline 3x &= 96 \\ \frac{3x}{3} &= \frac{96}{3} \\ x &= 32 \end{aligned}$$

$$\begin{aligned} \angle A &= x - 6 \\ &= 32 - 6 \\ &= 26 \\ \angle B &= 2x \\ &= 2(32) \\ &= 64 \end{aligned}$$

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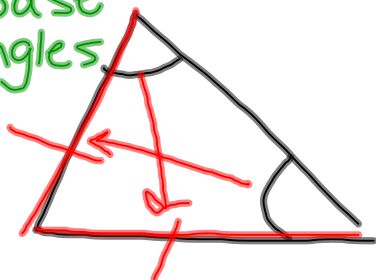
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*** For an isosceles Δ ***



The two \cong angles in an isosceles Δ are **OPPOSITE** the \cong sides!

base angles



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