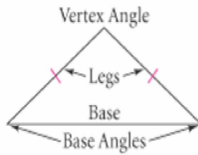


**Objectives:** To be able to use the properties of isosceles and equilateral triangles in order to find missing angle measures.

**Recall: Isosceles Triangles**

Triangle with 2 congruent sides

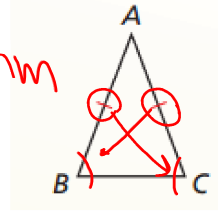
Parts of an Isosceles Triangle



Dec 22-2:22 PM

**Base Angles Theorem:** If two sides of a triangle are congruent, then the angles opposite the congruent sides (base angles) are congruent.

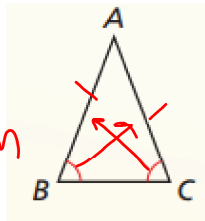
ISOS Δ thm



May 3-11:29 AM

**Converse of the Base Angles Theorem:** If two angles of a triangle are congruent, then the sides opposite the congruent angles are congruent.

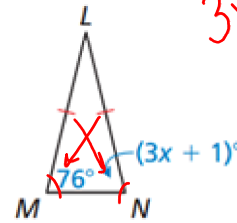
conv. ISOS Δ thm



May 3-12:15 PM

Example #1

Solve for x.

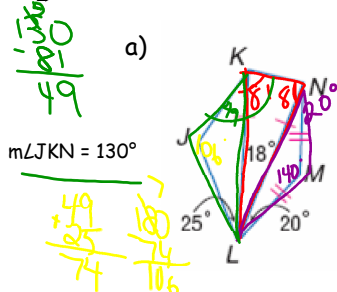


$$\begin{aligned}
 3x + 1 &= 76 \\
 3x &= 75 \\
 \boxed{x = 25}
 \end{aligned}$$



May 3-12:31 PM

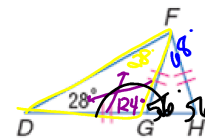
**Example 2:** Solve for the remaining angle measures.



$$\begin{aligned}
 180 \\
 - 18 \\
 \hline
 162 / 2 = 81
 \end{aligned}$$

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b)



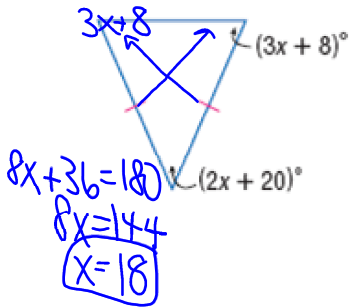
$$\begin{aligned}
 28 \\
 128 \\
 \hline
 56 \\
 180 \\
 - 56 \\
 \hline
 124
 \end{aligned}$$

$$\begin{aligned}
 180 \\
 - 112 \\
 \hline
 68
 \end{aligned}$$

$$\begin{aligned}
 180 \\
 - 124 \\
 \hline
 56
 \end{aligned}$$

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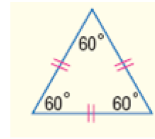
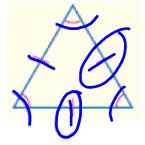
Example 3: Solve for x.



Dec 22-2:38 PM

**Corollaries:**

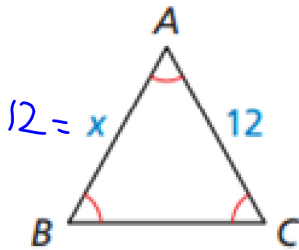
1. If a triangle is equilateral, then the triangle is **equiangular**.



2. If a triangle is equiangular, then the triangle is **equilateral**.

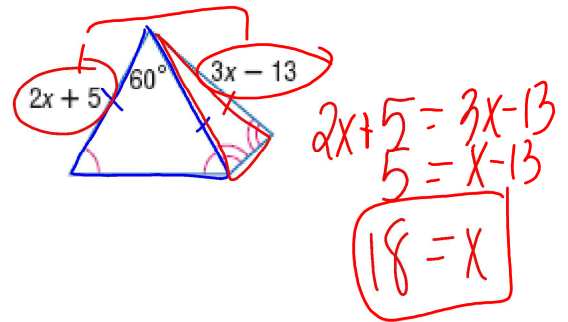
Dec 22-2:40 PM

Example 4: Solve for x.



Dec 22-2:43 PM

Example 5: Solve for x.



Dec 22-2:44 PM

Feb 3-12:32 PM