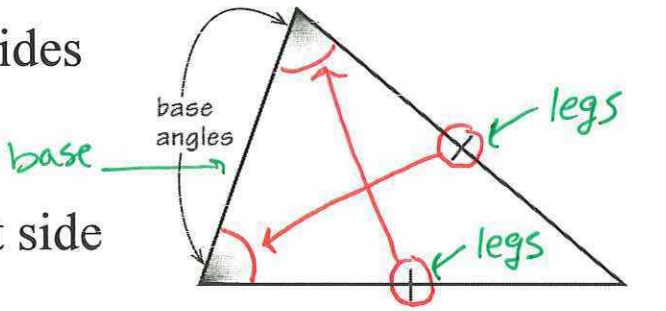
4-3 Isosceles and Equilateral Triangles

Objective: Use properties of isosceles and equilateral triangles

Legs of Isos Δ – 2 congruent sides

2 ≅ sides

Base of Isos Δ – noncongruent side



The base angles of an isosceles triangle are opposite the congruent sides.

Base Angle Theorem – If two sides of a Δ are ≅ then the angles opposite those sides are ≅.

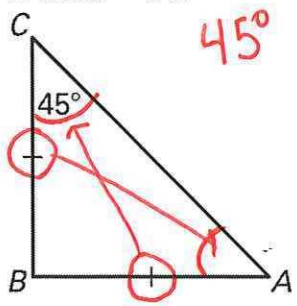
Converse of the Base Angle Theorem – if 2 angles of a Δ ≅ a then the sides opposite them are ≅

Equilateral Theorem: If a triangle is equilateral then it is equiangular

Equiangular Theorem: the converse of the Equilateral Th.

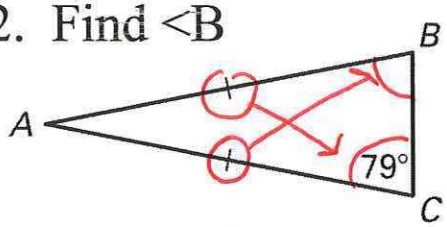
Examples:

1. Find <A



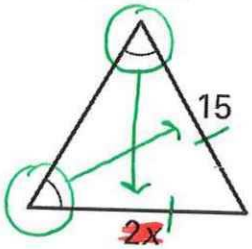
45°

2. Find <B



∠B = 79°

3. Find x

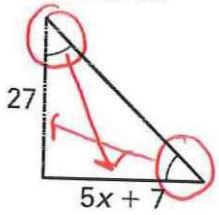


3x

$3x = 15$

$x = 5$

4. Find x



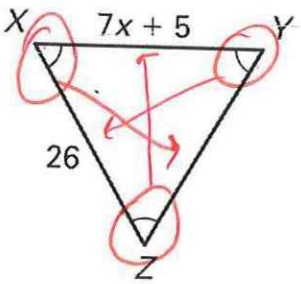
$5x + 7 = 27$

$-7 \quad -7$

$\frac{5x}{5} = \frac{20}{5}$

$x = 4$

5. Find x



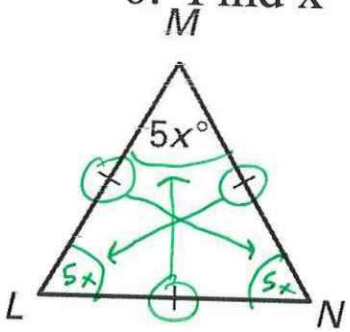
$7x + 5 = 26$

$-5 \quad -5$

$\frac{7x}{7} = \frac{21}{7}$

$x = 3$

6. Find x



$5x + 5x + 5x = 180$

$\frac{15x}{15} = \frac{180}{15}$

$x = 12$

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