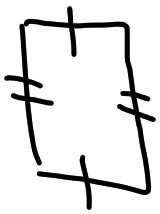
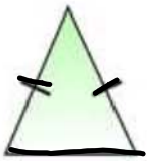
Geometry CC – Unit 1
Lesson 6: Isosceles Triangles/Angle-Side Relationships

Name: _____
Date: _____

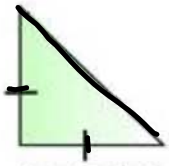
Quick Tip!

An isosceles triangle is generally drawn so it is sitting on its base. This may not, however, be the case in all drawings. These can be tricky triangles, so beware!

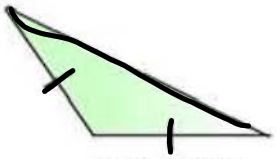




Isosceles Acute △



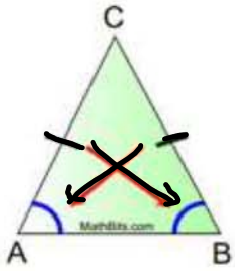
Isosceles Right △

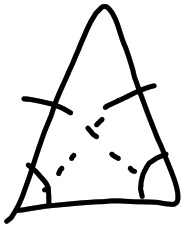


Isosceles Obtuse △

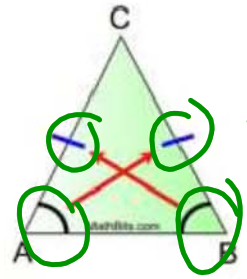
It's THEOREM time!

THEOREM: If two sides of a triangle are congruent, the angles opposite them are congruent. OR: The base angles of an isosceles triangle are congruent.





If: $\overline{AC} \cong \overline{BC}$
Then: $\angle A \cong \angle B$



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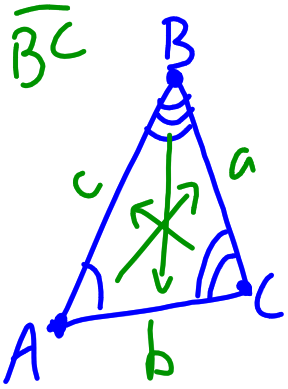
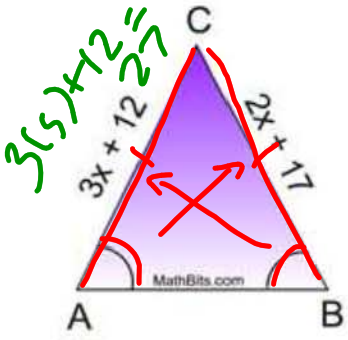


Let's investigate this THEOREM with some practice problems!

1. Find $\overline{AC}$ and $\overline{BC}$.



$3x+12=2x+17$

$-2x \quad -2x$

$x+12=17$

$-12 \quad -12$

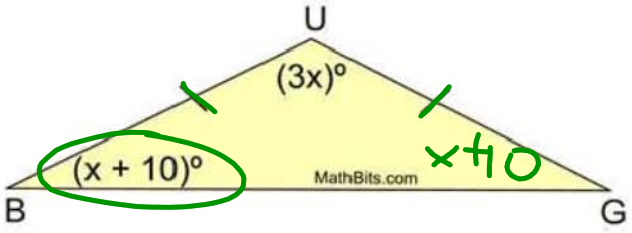
$x=5$

$\overline{AC}=27$

$\overline{BC}=27$

2.

ΔBUG is isosceles.
$m\angle B = x + 10$
$m\angle U = 3x$
Find $m\angle U$.



$x+10=x+10$

$3x+x+10+x+10=180$

3. The vertex angle of an isosceles triangle measures 20 degrees more than twice the measure of one of its base angles. How many degrees are there in a base angle of this triangle?