Algebra 2
Unit: Geometry
Section: Geometry of a Triangle

Tutorial: Congruent Triangles

Slide 1:

In this tutorial we will discuss how Algebra is used to solve problems involving congruent triangles and their corresponding parts.

Slide 2:

Congruent Polygons
If two polygons are congruent, all of the parts of one polygon are congruent to all of the corresponding parts or matching parts of the other polygon.

Slide 3:

Congruent Triangles
Triangles ABC and DEF are congruent. This means the following is true.
Angle A is congruent to angle D.
Angle B is congruent to angle E.
Angle C is congruent to angle F.
Side AB is congruent to side DE.
Side AC is congruent to side DF.
Side BC is congruent to side EF.
Special note: It is important to pay attention to how the triangles are names. In this case the triangles were names ABC and DEF. If I had said that ABC was congruent to EDF it would imply different corresponding parts and would not be true.

Slide 4:

Example.
Triangle ABC is congruent to triangle DFE. Find x.

In triangle ABC, side AB is labeled 10, side BC is labeled 13 and side CA is labeled 17. In triangle DFE, side DE is labeled x + 5.

Make sure you analyze the triangles and identifying the corresponding sides and angles.
Since triangle ABC is congruent to triangle DFE, then side DE is congruent to side AC.
X plus five is equal to seventeen.
X is equal to twelve.

Slide 5:

Now you try.
Answer the following question and click on solution to check your work.

Triangle LMN is congruent to triangle ZYX. Find x.

In triangle LMN, angle L is 65 degrees, angle M is 51 degrees. In triangle ZYX, Angle X is 4x degrees.

Solution:

The measure of angle N plus 51 plus 65 equals 180. The measure of angle N equals 64 degrees. Four x equals 64, x equals 16.

Slide 6:

Remember.
When working with congruent triangles first identify the corresponding or matching parts. Then, use Algebra to solve for missing variables, sides, or angles.