

NAME: _____

DATE: _____

NAME: _____

NAME: _____

NAME: _____

Mr. Ross

MGS21

Another Postulate on Triangle Congruence

AIM: How can we prove that triangles are congruent using congruence of corresponding parts?

After watching the video, write the name of each person in your group at the top of this packet. Work with your group to test the suggested postulate from each of the nominees and ultimately determine who should be inducted into the Triangle Congruency Hall of Fame.

Carefully read and follow the instructions below for each exploration. Answer all parts completely and neatly. Be aware that **one packet from each table should be turned in at the end of the period for a special class grade**; decide as a group whose packet you want to turn in (it will be returned after being graded.) **However, each person should also keep notes on his or her own packet for full credit.** *Good luck!*

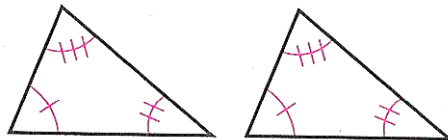
#1



Yosemite Sam

Angle Angle Angle *Is this valid?*

Two triangles are congruent if the three angles of one triangle are congruent, respectively, to the three angles of the other triangle.



- 1) Check your "explorer packet" to make sure that it contains three pink pieces of straw, three green pieces of straw, two orange pieces of straw and one yellow piece of straw, plus two 20" pieces of twine.
- 2) Thread three pieces of straw that are equal in length onto a piece of twine and secure the ends so that the pieces of straw form a triangle.

What type of triangle have you just created? _____

What is the measurement of each angle in this triangle? _____

3) Using three remaining pieces of equal length, try to create another triangle that is NOT congruent to the first triangle. Are you able to?

What type of triangle have you just created? _____

What is the measurement of each angle in this triangle? _____

4) Compare your two triangles. Are they congruent? _____

What other term have we used to describe two triangles like these, and why?

5) Based on your exploration, is Angle Angle Angle a valid way to show congruency of triangles? Should this nominee be inducted into the Hall of Fame? Why or why not?

#2

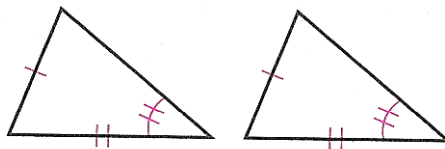
Side Side Angle *Is this valid?*

Two triangles are congruent if two sides and a non-included angle of one triangle are congruent, respectively, to two sides and the corresponding non-included angle of the other triangle.

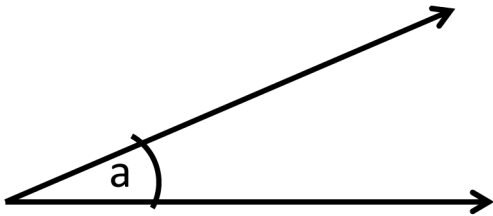


SSA

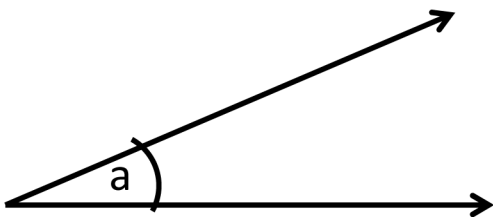
Wile E. Coyote



- 1) Try creating a triangle using an orange and a pink piece of straw as two sides and $\angle a$ as a non-included angle. Use a green piece of straw as your third side. Outline your triangle below, using $\angle a$ as part of your drawing; label the sides by their colors.



- 2) Now try creating a triangle using an orange and a pink piece of straw as two sides and $\angle a$ as a non-included angle. Use a yellow piece of straw as your third side. Outline your triangle below, using $\angle a$ as part of your drawing; label the sides by their colors.



- 3) Were you able to create a second triangle? _____
- 4) Based on your exploration, is Side Side Angle a valid way to show congruency of triangles? Should this nominee be inducted into the Hall of Fame? Why or why not?

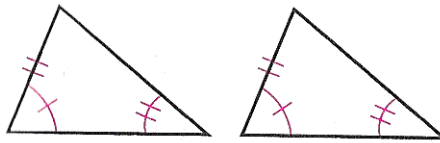
#3



Pepe Le Pew

Angle Angle Side *Is this valid?*

Two triangles are congruent if two angles and a non-included side of one triangle are congruent, respectively, to two angles and the corresponding non-included side of the other triangle.

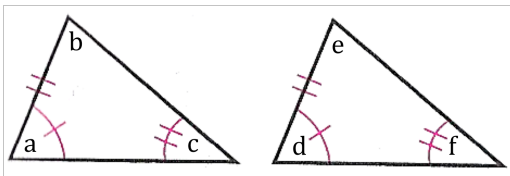


- 1) Create a triangle using an orange, a green and a pink piece of straw. Outline the triangle below; label the sides by their colors. Identify two angles and one non-included side that you wish to maintain. (You might want to sketch the angles separately on another paper so that you can trace them to use as reference.)

2) Try to create another triangle that uses a piece of straw that matches the non-included side and also contains the two corresponding angles you chose. Can you create a triangle that is NOT congruent to the first triangle? Can you make the three sides meet?

3) Based on your exploration, is Angle Angle Side a valid way to show congruency of triangles? Should this nominee be inducted into the Hall of Fame? Why or why not?

4) Let's look at this deductively. You are given two triangles in which two angles and a non-included side of one triangle are congruent, respectively, to two angles and the corresponding non-included side of the other.



Complete these correspondences:

$$\angle a =$$

$$\angle c =$$

$$\overline{ab} =$$

What is the sum of the angles in any triangle? _____

Since $\angle a = \angle d$ and $\angle c = \angle f$, then $\angle a + \angle c = \angle d + \angle f$.

What then can we determine about the measures of $\angle b$ and $\angle e$ and why?

With this new information, what other proven postulate can we now use to prove that these two triangles are congruent?
