

Congruence of triangles
NCTM Standard 7
WV IGO G.7

1. Under Display choose Preferences and make sure that auto show labels for point is checked, and that the precision of angles is in units.
2. Using the segment tool draw segment AB in the middle of the screen.
3. Construct a point on segment AB. It will be labeled C.
4. Select A then C. Using the menu bar, construct a circle by center and point. Drag C, so that C is closer to B than to A.
5. Select segment AB and construct another point on segment AB. It will be labeled D. Drag D, so that D is closer to A than to B.
6. Select B then D. Construct a circle by center and point.
7. Select the circles and construct points at the intersections. The circles should intersect at 2 points, 1 point above segment AB and 1 below the segment. The points should be labeled E and F.
8. Select points A and F and construct the segment.
9. Select points B and F and construct the segment.
10. Select points A and E and construct the segment.
11. Select points B and E and construct the segment.
12. Select the circles. Using Display hide the circles. Triangles ABE and ABF should remain on the screen.
13. Using the select tool and measure from the menu bar, measure the following in triangle ABF in order; AB, BF, FA, \angle ABF, \angle BFA, and \angle FAB.

14. Using the select tool and measure from the menu bar, measure the following in triangle ABE in order; AB, BE, EA, $\angle ABE$, $\angle BEA$, and $\angle EAB$. Drag the measures of triangle ABE so they are beside the corresponding measures of triangle ABF.

AB	AB
BF	BE
FA	EA
$\angle ABF$	$m \angle ABE$
$\angle BFA$	$m \angle BEA$
$\angle FAB$	$m \angle EAB$

15. What do you notice about the corresponding segments and angles of the two triangles?
16. Describe the effect on the measures when you move point A.
17. Describe the effect on the measures when you move point B.
18. Describe the effect on the measures when you move point C.

19. Describe the effect on the measures when you move point D.

20. Describe the effect on the measures when you move point E.

21. Describe the effect on the measures when you move point F.

22. Comparing the measures of the corresponding parts of the triangles, state the congruence relationship between the two triangles.

23. What steps in the construction of the triangles led to this relationship?

24. What postulate does this reinforce?

25. Can you construct two congruent triangles using the SAS, ASA, or AAS postulate?