

Solve:

$$14x - 2y = 46$$

$$-2(7x - y = 23)$$

$$-14x + 2y = -46$$

$$0 = 0$$

$$y = 8 - 5(2)$$

$$y = -2$$

$$y = 8 - 5x$$

$$-3x + 2y = -10$$

$$-3x + 2(8 - 5x) = -10$$

$$-3x + 16 - 10x = -10$$

$$-13x + 16 = -10$$

$$\frac{-16}{-16} \quad \frac{-16}{-16}$$

$$\frac{-13x}{-13} = \frac{-26}{-13}$$

$$x = 2$$

$$x = 2$$

4. SAS

5. SSS

6. cannot be determined

7. SSS

8. SAS

9. SSS (and the Converse of the Isosceles Triangle Conjecture)

10. yes, $\triangle ABC \cong \triangle ADE$ by SAS

12. *FLE* by SSS

Yes $\angle N \cong \angle L$. If triangles are congruent, then corresponding angles are congruent.

13. Cannot be determined. SSA is not a congruence conjecture.

14. *AIN* by SSS or SAS

Yes $\angle G \cong \angle A$. If triangles are congruent, then corresponding angles are congruent

15. Cannot be determined. Parts do not correspond.

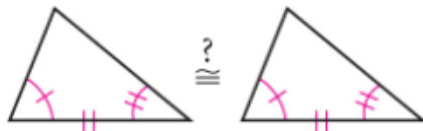
16. *SAO* by SAS

Yes $\overline{AO} \cong \overline{AT}$. If triangles are congruent, then corresponding parts are congruent.

17. Cannot be determined. Parts do not correspond.

4.5 - Are there other congruence shortcuts?

Angle-Side-Angle (ASA)



Two pairs of congruent angles and one pair of congruent sides (sides between the pairs of angles)

Side-Angle-Angle (SAA)



Two pairs of congruent angles and one pair of congruent sides (sides not between the pairs of angles)

Angle-Angle-Angle (AAA)



Three pairs of congruent angles

Investigation 4.5 on Sketchpad

ASA Congruence Conjecture: If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent.

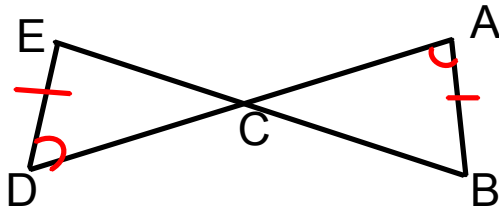


SAA Congruence Conjecture: If two angles and a non-included side of one triangle are congruent to the corresponding two angles and non-included side of another triangle, then the triangles are congruent.



AAA: If all three angles of a triangle are congruent to all three angles of another triangle, then the triangles are not necessarily congruent.





Given: $ED \cong AB$ and $\angle D \cong \angle A$

Prove: $\triangle EDC \cong \triangle BAC$

What is the relationship between determining a triangle and being a congruence shortcut?



Since SAS is a congruence shortcut, is SSA?

What are the 4 congruence shortcuts that we have discovered?



Can you use ASA in one triangle and SAA in another triangle to prove the 2 triangles congruent? Explain.



Which triangles if any are congruent?

