

Congruent Triangles

Grace Freking

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Theorem 7.3. If we weaken the hypothesis of the previous conjecture so that the angles A and D are still congruent but no longer assumed to be right angles, and leave the other hypotheses intact, the conclusion does not hold.

Proof. Construct an acute angle where A is a fixed point, B is the acute angle, and B is also an extended ray. Repeat this process making D the fixed point, E the acute angle, and E also an extended ray. AB must be congruent to DE and angle B must be congruent to angle E . Create circle A that crosses over ray B at two points. Create circle D that is congruent to circle A and crosses over ray E at two points. Connect point A to the point of intersection closest to angle B . Connect point D to the point of intersection farthest from angle E . We made AB congruent to DE and angle B congruent to angle E . AC is congruent to DF because they are both the radius of congruent circles. Triangle ABC is not congruent to triangle DEF because angle A is not congruent to angle D . Therefore, triangle ABC is not congruent to triangle DEF .

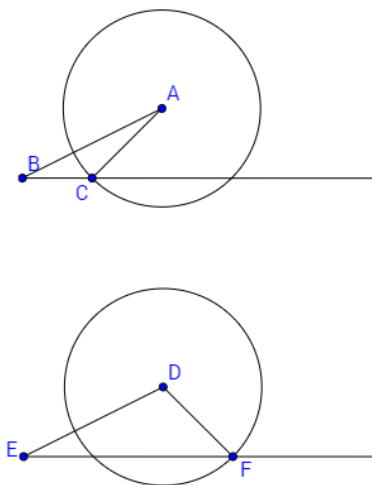


Figure 1: Triangles ABC and DEF .

Refereed by Ryan Gebel

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