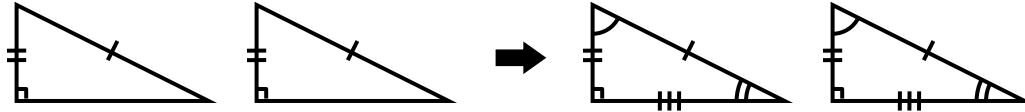


Class Drill for Section 7.6 The Hypotenuse Leg Congruence Theorem

Theorem 71 the Hypotenuse Leg Congruence Theorem for Neutral Geometry

In Neutral Geometry, if there is a one-to-one correspondence between the vertices of any two right triangles, and the hypotenuse and a side of one triangle are congruent to the corresponding parts of the other triangle, then all the remaining corresponding parts are congruent as well, so the correspondence is a congruence and the triangles are congruent.

Remark: The statement of the theorem can be illustrated by the picture below.



Theorem 71

Justify and illustrate the steps in the following proof:

(1) Suppose that in Neutral Geometry, right triangles $\triangle ABC$ and $\triangle DEF$ have right angles at $\angle A$ and $\angle D$, and congruent hypotenuses $\overline{BC} \cong \overline{EF}$, and a congruent leg $\overline{AB} \cong \overline{DE}$, (**Make a drawing.**)

(2) There exists a point G such that $C * A * G$ and $\overline{AG} \cong \overline{DF}$. (**Justify. It will take two steps.**) (**Make a new drawing.**)

(3) $\triangle ABG \cong \triangle DEF$. (**Justify.**) (**Make a new drawing.**)

(4) $\overline{BG} \cong \overline{EF}$. (Justify.) (Make a new drawing.)

(5) $\overline{BG} \cong \overline{BC}$. (Justify.) (Make a new drawing.)

(6) $\angle CGB \cong \angle GCB$. (Justify.) (Make a new drawing.)

(7) $\triangle ABC \cong \triangle ABG$. (Justify.) (Make a new drawing.)

(8) $\triangle ABC \cong \triangle DEF$. (Justify.) (Make a new drawing.)

End of proof