

MATH 406 - Optional Exercises

Submit proofs for the following only if you are willing to present them to the class.

1) Prove the SSS theorem for the congruence of triangles in neutral geometry.

2) Prove the Crossbar Theorem in neutral geometry.

Crossbar Theorem

If D lies in the interior of $\angle ABC$, then \overrightarrow{AD} meets \overline{BC} at some point E such that $B-E-C$.

3) Prove the Hinge Theorem.

Hinge Theorem

If two sides of one triangle are congruent respectively to two sides of a second triangle, and the included angle of the first triangle is larger than the included angle of the second triangle, then the opposite side of the first triangle is larger than the opposite side of the second triangle.