

Due March 3

Name

Directions: Be sure to include in-line citations, including page numbers if appropriate, every time you use the results of discussion, a text, notes, or technology. **Only write on one side of each page.**

“Poetry is a subject as precise as geometry.” -Gustave Flaubert, novelist (1821-80)

“In mathematics you don’t understand things. You just get used to them.” — John von Neumann

Problems

1. Using any previous results, formally prove the Crossbar Theorem: If ray \overrightarrow{AD} is between ray \overrightarrow{AC} and ray \overrightarrow{AB} , then ray \overrightarrow{AD} intersects segment BC . [Hint: Use Proposition 3.8.c to show that B, C are on opposite sides of line \overleftrightarrow{AD} , then show that BC does not meet the ray opposite to ray \overrightarrow{AD}]
2. Using any previous results (including the earlier portions of the same proposition), formally prove the last part of Proposition 3.13: If AB, CD, EF are segments in which $AB < CD$ and $CD < EF$, then $AB < EF$.