Name: _____ **Take-Home Quiz 2**

Math 331 Foundations of Geometry – Crawford **Due: Wednesday, October 31, 2018, by noon**

This quiz is take-home and ***you are on your honor to work alone*** – you may not get help from other people, in person or via technology. By turning in the assignment with your name, you are verifying that you have worked alone on these problems*. You may use books and notes for these problems. ***Show all your work and clearly justify each step in the proof.*** Partial credit may be given for written work. ***Good luck!***

Please do your work on the back side or other sheets of paper and staple this sheet on top as a cover sheet. You may answer the True/False on this sheet.

Note: This quiz covers Sections 3.6, 4.1 and 4.2.

1. (8 pts) Let $\triangle ABC$ be a triangle with $AB = AC$. Prove: If M is the midpoint of $\overline{BC}$ then $\overleftrightarrow{AM} \perp \overleftrightarrow{BC}$.

2. (8 pts) Section 4.1, p. 73 #1. [*Note: It is okay if you worked with others on this question prior to when the Take-Home Quiz was sent. However, after it was sent, you may no longer work with others on the problem.]

3. (4 pts) Clearly indicate whether the following statements are TRUE or FALSE.

(a). If $\triangle ABC$ is a triangle, then A, B, and C must be noncollinear.

(b). Congruence of $\triangle ABC$ and $\triangle DEF$ by ASS will only be guaranteed if the congruent angle is a right angle.

(c). A triangle congruent to $\triangle ABC$ can always be constructed on any given ray $\overrightarrow{GH}$.

(d). Remote interior angles must always be acute.