MEDU 2010 **Name (Print):** _____
Fall 2017
Professor K. Poirier
Midterm Exam—Geometry Component
November 3

Answer the following questions in the space provided. Use complete sentences. Clearly explain each step, using theorems from the textbook. Include the name of the theorem you are using (if you forget the exact name, include the statement of that theorem).

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1. Construct a triangle $\triangle ABC$. Construct the midpoints of the sides of $\triangle ABC$. Label the midpoints D, E, and F in such a way that D lies on the side opposite A, E lies on the side opposite B, and F lies on the side opposite C. Construct the medians AD and BE and the segment DE.

2. Prove that $\triangle ABC$ is similar to $\triangle EDC$.

3. Prove that $AD = 2ED$.

4. Prove that $\triangle ABG$ is similar to $\triangle DEG$.

5. Use the preceding exercises to prove that $AG = 2GD$ and that $BG = 2GE$.

6. Use the preceding exercises to prove that $CG = 2GF$.