

**MAT 515: Geometry for Teachers**  
Problem Set 2

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**Problem 1.** (5 points) Compute the number of diagonals of a hexagon.

**Problem 2.** (4+3 points) Prove that each diagonal of a quadrilateral either lies entirely in its interior or entirely in its exterior.

Give an example of a pentagon for which the above statement is false.

**Problem 3.** (5 points) Give an example of a pentagon that has four pairwise non-intersecting (away from endpoints) diagonals.

**Problem 4.** (5 points) Give an example of a triangle such that only one of its altitudes lies in its interior.

**Due Date:** Wednesday September 18.