

MAT 515: Geometry for Teachers
Problem Set 1

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Problem 1. (5 points) Is the sum of the angles $14^{\circ}24'44''$ and $75^{\circ}35'25''$ acute or obtuse?

Problem 2. (5 points.) One of the angles formed by two intersecting lines is $70^{\circ}15'$. Find the measure of the other three.

Problem 3. (5 points.) Three lines passing through a given point divide the plane into six angles. Two of these angles turn out to be measuring 25° and 55° . Find the measure of the remaining four angles.

Problem 4. (5 points.) Two angles are called **vertical** if the sides of one of them form continuations of the sides of the other. Prove that bisectors of two vertical angles are continuations of each other.

Problem 5. (*Bonus problem*, 5 points.) On a given line, mark a segment congruent to $2AB+3CD$ using a compass exactly three times, where AB and CD are two given segments.

Due Date: Wednesday September 11.