

MAT 360
Homework 3

Please do questions 91, 93, 95, 101, as well as the questions below.

Problem 1. Prove theorems from section 53 in the book. (Argue by contradiction, use the theorem in section 52.)

Problem 2. Four houses A , B , C , D are at the vertices of a square. The residents would like to dig a well at a point W such that the sum of distances $AW + BW + CW + DW$ from all the houses to the well is the smallest possible. Where should they dig the well? Prove your answer.

Problem 3. Suppose that points D and E lie inside the triangle $\triangle ABC$. Consider the triangle $\triangle ADE$. Prove that the perimeter of $\triangle ABC$ is greater than the perimeter of $\triangle ADE$.