

EE202 Numerical Methods for Engineers  
Laboratory Assignment: 10

\*\* Find solutions of the following questions in Matlab:

Question 1:

A farmer has 2400 m of fencing and wants to fence off a rectangular field that borders a straight river. He needs no fence along the river. What are the dimensions of the field that has the largest area? Please plot the Area against the width of the rectangular field.

Question 2:

We want to construct a box whose base length is 3 times the base width. The material used to build the top and bottom costs 10 TL/ m<sup>2</sup> and the material used to build the sides costs 6 TL/m<sup>2</sup>. If the box must have a volume of 50 m<sup>3</sup>, find the dimensions that will minimize the cost to build the box. Please plot the cost function against the base width of the box.

Question 3:

Determine the area of the largest rectangle that can be inscribed in a circle of radius 4. Please plot the area function against the width of the rectangle.