PROBLEM 1: Write Matlab code that uses the steepest descent method to find the minimum of the following function. The program parameters are the maximum error tolerance and initial condition. (10 points)

\[ z = x_1^2 - 2x_1 + x_2^2 + 4 \]

PROBLEM 2: Write Matlab code that uses the Newton Raphson method to find the minimum of the following function. The program parameters are the maximum error tolerance and initial condition. (10 points)

\[ z = x_1^2 - 2x_1 + x_2^2 + 4 \]

PROBLEM 3: Write Matlab code that uses the method of steepest descent (section 6.2; pages 335-336) to solve Example 6.2-1 (page 337) numerically. (10 points)