Homework 4

Solve textbook problems 10.57 and 10.72. You do not need to write a memo for this assignment.

Part 1 (6 pts): Show your calculation process for the first two iterations, and for each iteration please show:

1. $\mathbf{x}^{(k)}$
2. Gradient of $f(\mathbf{x})$, which is $\mathbf{c}^{(k)}$
3. Absolute value of $\mathbf{c}^{(k)}$
4. The steepest-descent direction $\mathbf{d}^{(k)}$
5. Step size α_0

Part 2 (4 pts): Complete all iterations to reach an optimum solution (tolerance = 10E-4). Show:

1. Optimum design point (x^*_1, x^*_2, x^*_3)
2. Optimum cost function value
3. Gradient of $f(\mathbf{x})$ at the optimum point
4. Number of iterations (final k value)