Worksheet #19 (2017/12/25)

Name: ID:

CS3330 Scientific Computing, Instructor: Cheng-Hsin Hsu

- We plan to cover Sections 6.2.1–6.5.7 today.
- We use Chapter 06 slides 10–53.
- This is corresponding to the textbook pages 260–285.

1) Find and classifying the critical points of a function $f : \mathbb{R}^2 \to \mathbb{R}$, $f(x) = 2x_1^3 + 3x_1^2 + 12x_1x_2 + 3x_2^2 - 6x_2 + 6$.

2) For $f(x_1, x_2) = 2\pi x_1(x_1 + x_2)$ and $g(x_1, x_2) = \pi x_1^2 x_2 - V$, find the optimum when $V = 1000$.

3) What are the Karush-Kuhn-Tucker (KTT) conditions?

4) Minimize $f(x) = 0.5x_1^2 + 2.5x_2^2$ subject to $h(x) = x_2 - x_1 + 1 \leq 0$.