Name:

Quiz 9 – 20 November 2019

Problem	Weight	Score
1	1	
2	2	
Total		/ 30

Instructions. You have 15 minutes to complete this quiz. You may use your calculator. You may <u>not</u> use any other materials (e.g., notes, homework, books).

Show all your work. To receive full credit, your solutions must be completely correct, sufficiently justified, and easy to follow.

For this quiz, consider the following optimization problem:

$$\text{minimize/maximize} \quad xyz$$
$$\text{subject to} \quad 2x + 3y + z = 6$$

Problem 1. Write a system of equations whose solutions are the constrained critical points for this optimization problem. <u>Do not solve the system of equations.</u>

Here is the optimization problem again for your convenience:

$$\text{minimize/maximize} \quad xyz$$
$$\text{subject to} \quad 2x + 3y + z = 6$$

Problem 2. One of the constrained critical points for this optimization problem is $(\lambda, x, y, z) = (0, 0, 0, 6)$. Classify this point as a constrained local minimum, constrained local maximum, or constrained saddle point.