## [COURSE] Maple assignment #5

A web page which can help you with this assignment will be linked to the course webpage. You are encouraged to discuss this assignment with other students and with the instructors, but the work you hand in should be your own.

A website will be posted listing individualized data for each student. For this lab, the data will consist of a constraint (restricting a function's value to 1) and an objective function. Each of these functions will be polynomials in four variables (x,y,z, and w). You are to find the maximum and minimum value of the objective function, with candidates restricted to those 4-tuples satisfying the constraint equation. You should report the max and min values you find, and the number of points in  $\mathbb{R}^4$  given as candidates using the Lagrange multiplier method.

Please use some care in copying the constraint equation and objective function. Some of the formulas will be long and elaborate – this problem is *almost real*.

This assignment is due [DUE DATE]. Late submissions will not be accepted.

## Please hand in the following material:

- 0. All pages should be labeled with your name and section number. Also, please staple together all the pages you hand in.
- 1. A printout of all Maple instructions you have used. (Yes, you may and should "clean up" by removing the instructions that had errors.)
- 2. Identify clearly in your printout the candidates produced by using Maple to carry out the Lagrange multiplier method using your data. Be sure to declare explicitly how many different candidates (4-tuples of numbers) there are.
- 3. Show how Maple identifies the maximum and minimum values, and be sure to identify these numbers clearly.