

Homework 5

Multivariable Calculus

Due: Mar 27, 2023, 23:59

Computational problems are graded for completion, each problem is worth 1 points.

Conceptual problems are NOT graded but good for your own development if you like to prove things.

Show all your work to get full credits for each problem.

1 Computational

Do the following problems in Stewart's calculus textbook, 8th edition.

Section 14.3: 16-30, 47-51, 76-78

Section 14.4: 1-6

Section 14.5: 1-12, 44, 54

Section 14.6: 11-17

2 Conceptual

Problem 1. Read about the Cobb-Douglas Production function.

Problem 2. Let

$$f(x) = \begin{cases} 0, & x^2 < y < 2x^2 \\ 1, & \text{otherwise.} \end{cases}$$

Show that $f_x(0,0)$ and $f_y(0,0)$ exist, but f is not differentiable at $(0,0)$.