

## MA280 Exam 2 Topics

- 1) Partial Derivatives
  - a. Computing algebraically
  - b. Estimating numerically
- 2) Tangent planes
  - a. Find the tangent plane to a surface at a point and use it to estimate a nearby value
- 3) Differentials
  - a. Use differential to estimate error in measurement of computed values
- 4) Chain Rule
- 5) Directional Derivatives
  - a. Be able to compute a directional derivative
- 6) Gradient
  - a. Find the gradient of a function and use it to maximize the directional derivative
- 7) Max and Min Values
  - a. Use partial derivatives to find the local extrema of a function of several variables
  - b. Find the absolute extrema of a function over a closed domain
  - c. Find the max and minimum values of a function subject to a constraint (Lagrange Multipliers)