

**MAC 2313                      STUDY GUIDE FOR TEST 2**

- 1.) (i) Draw level curves of a function  $f(x, y)$ . (Reference: Quiz 5; Example 3 on page 888.)  
(ii) Find and sketch the domain of  $f(x, y)$ . (Reference: Example 1(a) on page 885; Exercises 17, 21, 23 on page 892.)
- 2.) Find first and second partial derivatives of a function  $f(x, y)$ . (Reference: Examples 1–4 and 6–8 on pages 906–911; homework for Section 13.3; Quiz 5.)
- 3.) A question on chain rule for functions of several variables. (Reference: Examples 1, 3 and 4 on pages 923–926; Exercises 1, 3, 15, 17, 23, 25 on page 929.)
- 4.) A question on implicit partial differentiation. (Reference: Example 7 on page 928; Exercises 31–37 on page 929.)
- 5.) Gradient, directional derivative and their properties. (Reference: Examples 1–5 on pages 931–936; Quiz 6.)
- 6.) Find an equation of the tangent plane to a surface at the given point. (Reference: Examples 1–3 on pages 943–946; Homework for Section 13.7.)
- 7.) (i) Find critical points of a function  $f(x, y)$ . (ii) Use the second derivative test to classify the critical points. (Reference: Examples 1 and 3 on pages 954–956; examples done in class; Homework for Section 13.8.)