

MA 242 Section 13 – Test 2 – Review

This review sheet contains questions that are similar to what I will ask on the test. The actual test will have fewer questions.

- (1) 3.1.5: 7, 9, 11
- (2) 3.2.4: 5, 9, 13, 19, 21, 23, 25. Note: I won't necessarily tell you what method to use or not use on a test, even though 19, 21, 23, and 25 do.
- (3) 3.3.6: 23, 25 (ignore the "normal line" bit (or read up on it and figure it out if you're feeling adventurous)).
- (4) 3.4.5: 17, 19
- (5) 3.5.7: 12, 15, 32, 33, 35
- (6) Suppose an ant is climbing a mound whose shape is given by the equation

$$z = 20 - x^2 - y^2$$

where x, y, z are given in centimeters. The positive x -axis points east, and the positive y -axis points north. Assume the ant starts at coordinates $(1, 1, 18)$.

- (a) If the ant walks northeast, will it move up, down, or stay at the same height?
At what rate?
 - (b) In which direction is the slope largest?
 - (c) In which direction is the slope smallest?
- (7) 3.6.5: 1, 5, 7, 11, 13 (similar to, but a bit longer and messier than something I might actually ask), 15, 17, 19
 - (8) Find the dimensions of the box with volume 1000 cm^3 and an open top that has minimal surface area
 - (9) 3.7.1: 1, 3, 5, 15