MA 242 Section 1 – 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) Section 3.1.5 numbers 7,9,11
(2) Section 3.2.4 numbers 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 number 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 numbers 17,19
(5) 3.5.7 numbers 13,17,35,40
(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 numbers 1,5,7,11,13,15,17,19
(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 numbers 1,3,5,15