MA 242 Section 1 – Test 4 – 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) 6.1.5: 1
(2) 6.2.1: 8,11,15
(3) Let C be a wire with density function $\rho(x, y) = x^2 + y$. Compute the mass of C if C is the top semicircle of the circle of radius 2 centered about $(2, 0)$.
(4) Let C be a wire with density function $\rho(x, y) = 3x + xy$. Compute the mass of C if C consists of the bottom semicircle of the circle of radius 1 centered at $(0, 0)$, followed by the line segment from $(1, 0)$ to $(2, 2)$.
(5) Let C be the arc of the graph of $x = y^2 + 3y + 1$ between $(5, 1)$ and $(11, 2)$. For each of the following possibilities for F, determine if F is conservative and if it is, find a potential function. **In either case compute** $\int_C F(x, y) \cdot d\mathbf{r}$
   (a) $F = \langle 1 + y, x + 3y^2 \rangle$
   (b) $F = \langle x + y, y \rangle$
   (c) $F = \langle 2xy + \cos x, x^2 - \sin y \rangle$
(6) 6.4.4: 3,7,9
(7) 6.5.5: 7,9,11,13,17,19
(8) More from 6.5.5: 25,27,31,33