Math 141 (Section 5 & 6)   University of South Carolina
Prof. Meade   Fall 2013

Quiz 10   Name: ___Key___
November 7, 2013   Section: 005 / 006 (circle one)

1. (5 points) Find the most general antiderivative of $f(x) = \frac{2}{\sqrt{x}} - 3e^x + \cos(x)$.

$$= 2x^{-1/2} - 3e^x + \cos(x)$$

$$F(x) = \frac{2}{1/2} x^{1/2} - 3e^x + \sin(x) + C$$

$$= 4x^{1/2} - 3e^x + \sin(x) + C$$

2. (5 points) Find f when $f''(x) = 2 + 12x$, $f(1) = 15$, and $f'(1) = 9$.

$$f'(x) = 2x + 6x^2 + C_1$$

$$f'(1) = 2 + 6 + C_1 = 8 + C_1 = 9$$

$$C_1 = 1$$

$$f'(x) = 2x + 6x^2 + 1$$

$$f(x) = x^2 + 2x^3 + x + C_2$$

$$f(1) = 1 + 2 + 1 + C_2 = C_2 + 4 = 15$$

$$C_2 = 11$$

$$f(x) = x^2 + 2x^3 + x + 11.$$