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 $f(x) = 2\sqrt{x} - 3e^x + \sin(x)$.

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

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

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

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

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

$$f'(1) = 2 - 6 + C_1 = C_1 - 4 = 15$$

$$C_1 = 19.$$

$$f'(x) = 2x - 6x^2 + 19$$

$$f(x) = x^2 - 2x^3 + 19x + C_2$$

$$f(1) = 1 - 2 + 19 + C_2 = C_2 + 18 = 9$$

$$C_2 = -9.$$

$$f(x) = x^2 - 6x^2 + 19x - 9$$