## **Review Problems**

## November 16, 2016

- 1. (Fall 2009, Exam Final, #21) A rectangle is centered at the origin, its sides are parallel to the axes and all of its verticies lie on the curve  $4x^2 + y^2 = 8$ . What is the maximum area of such a rectangle?
- 2. (Fall 2005, Exam 3, #4) Find f(x) if  $f'(x) = 3x^2 + \frac{2}{x}$ , x > 0, f(1) = 3.
- 3. (Fall 2005, Exam 3, #7) Find the most general antiderivative to  $f(x) = \sin 2x + 2x$ .
- 4. (Fall 2007, Exam 3, #9) Given  $f''(\theta) = \sin \theta + \cos \theta$ , f(0) = -1, f'(0) = 4, find  $f(\pi/4)$ .
- 5. (Fall 2008, Exam 3, #13) Find the most general antiderivative of the function  $g(x) = \cos(2x) 3\sin(x)$ .
- 6. (Fall 2008, Exam 3, #14) If  $f''(x) = x^{1/3}$ , f'(8) = 10, and f(1) = 0, then find f(0).
- 7. (Fall 2008, Exam Final, #17) (This is only part of the question asked) Find the antiderivative of  $x^2 \sqrt{x} + 1$ .
- 8. (Fall 2009, Exam Final, #18) A certain function f(x) satisfies f''(x) = 2 3x. We also know that f'(0) = -1 and f(0) = 1. Compute f(2).