

NAME:

Rec. Instructor:

Math 221 – Analytic Geometry and Calculus 2

Exam 1, Summer 2013

In order to receive full credit (or any credit at all), answers must be justified. Put a box around your final answer so the grade knows what your solution is. Use exact numerical answers, NOT calculator-generated answers. Solutions do not need to be completely simplified in order to receive full credit. The point value of each problem appears in parenthesis.

(20) Problem 1. Evaluate the indefinite integral. (Note we do not have a reduction formula for hyperbolic trig functions)

$$\int \sinh^3(5x) dx$$

(20) Problem 2. Evaluate the definite integral.

$$\int_0^1 \frac{t^2}{(t^2 + 1)^{5/2}} dt$$

(20) Problem 3. Evaluate the indefinite integral.

$$\int e^{3x} \cos(4x) dx$$

(20) Problem 4. Compute the volume obtained by rotating the region bounded by $y = 1 - x^2$ and $y = 0$ about the vertical line $x = 2$.

(5 each) Problem 5. Find the exact numerical values of each of the following expression

$$\tan\left(\sec^{-1}(2)\right)$$

$$\sin\left(2\sin^{-1}\left(\frac{1}{2}\right)\right)$$

$$\sin^{-1}\left(\sin\left(\frac{3\pi}{4}\right)\right)$$

$$\cot\left(\cos^{-1}\left(-\frac{1}{3}\right)\right)$$