

Math2B - Practice Midterm 1

January 22, 2009

1. Using the substitution rule to evaluate the following indefinite integral (including the constant C is not required)

$$\int t \sin(t^2) dt$$

2. Using the substitution rule to evaluate the following definite integral.

$$\int_1^2 x \sqrt{x-1} dx.$$

3. Find the area of the region enclosed by the given curve (decide whether to integrate with respect to x or y).

(1) $y = x, y = x^2$. (2) $x = 2y^2, x + y = 1$.

4. Find the volume of a solid obtained by rotating the region bounded by the given curves about the specified line.

(1) $y = x$ and $y = x^2$ about y axis

(2) $y = x$ and $y = x^2$ about $x = 2$.

5. Compute the arc length exactly, $y = 4x^{3/2} + 1, 1 \leq x \leq 2$.