MATH 253 Week 8

This does **NOT count for credit**

1. Which of the following integrals give the area of the region enclosed by $y = x^2$ and $y = 2x$?

a) $\int_0^2 (2x - x^2)dx.$

b) $\int_{-1}^1 (x^2 - 2x)dx.$

c) $\int_{-1}^1 (2x - x^2)dx.$

d) $\int_0^2 (x^2 - 2x)dx.$

e) $\int_0^2 (x^4 - 4x^2)dx.$

2. Which of the following integrals give the area of the region enclosed by $y = x^3$ and $y = ax$, $a > 0$?

a) 0.

b) $2\int_0^{\sqrt{a}} (x^3 - ax)dx.$

c) $\int_0^{\sqrt{a}} (ax - x^3)dx.$

d) $\int_0^{\sqrt{a}} (x^3 - ax)dx.$

e) $2\int_0^{\sqrt{a}} (ax - x^3)dx.$

3. Find the arclength of the curve $x = y^{3/2}$, $1 \leq y \leq 2$.

4. Find the arclength of the curve $y = x^{3/2}$, $1 \leq x \leq 2$.

5. Find the volume obtained by rotating the region enclosed by $y = 2 - x$ and $y = x^2$ about the axis $y = -1$.

6. Find the volume obtained by rotating the region enclosed by $y = 2 - x$ and $y = x^2$ about the axis $y = 4$.

7. Find the volume obtained by rotating the region enclosed by $y = \sin(x)$ and $y = \cos(x)$, $0 \leq x \leq \pi/4$, about the y-axis.

8. Find the volume obtained by rotating the region enclosed by $y = -x$, $y = 2x$ and $y = 2$ about the x-axis.