Homework questions for sections 6.1, 6.2 *Math 104, Spring 2007*

Credit is given only if supporting work is shown. Only correct answers receive credit. No partial credit is given.

1. What is the total area of the region enclosed by the graphs of the functions $y = x^4$ and $y = 2x^3 - x^2$?

   A.) 1/30 B.) 1/15 C.) 1/5 D.) 1/3 E.) 1 F.) 4/3

2. What is the area of the region enclosed by the graph of the function

$$f(x) = 3 - \frac{1}{x^2},$$

the x-axis, and the tangent line to the graph of $y = f(x)$ at the point $(1, 2)$?

A.) $\sqrt{3} - 1$ B.) $\sqrt{3} - \frac{1}{2}$ C.) $\sqrt{3} - \frac{7}{3}$ D.) $2\sqrt{3} - 3$ E.) $2\sqrt{3} - \frac{3}{2}$ F.) $2\sqrt{3} - \frac{11}{3}$

3. What is the volume of the solid of revolution generated by rotating the region enclosed by the graphs of $y = x^2$ and $x = y^2$ around the axis of rotation $x = -1$?

   A.) $\frac{17}{14}\pi$ B.) $\frac{91}{70}\pi$ C.) $\frac{29}{30}\pi$ D.) $\frac{17}{15}\pi$ E.) $\frac{12}{7}\pi$ F.) $\frac{41}{28}\pi$