

**Homework questions for sections 6.1, 6.2, 6.3**

*Math 104, Fall 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  $y = x^2$  and  $y = x^4$ ?  
A.)  $1/3$       B.)  $2/3$       C.)  $2/15$       D.)  $4/15$       E.)  $4/25$       F.)  $8/25$

2. The region enclosed by the graph of

$$y = \frac{1}{x^2}$$

and the lines  $y = 0$ ,  $x = 1$ , and  $x = 3$  is rotated around the axis  $y = -1$ . What is the volume of the resulting solid?

- A.)  $\frac{62}{81}\pi$    B.)  $\frac{80}{81}\pi$    C.)  $\frac{98}{81}\pi$    D.)  $\frac{107}{81}\pi$    E.)  $\frac{134}{81}\pi$    F.)  $\frac{152}{81}\pi$

3. The region enclosed by the graph of  $x = 4y^2 - y^3$  and the line  $x = 0$  is rotated around the  $x$ -axis. What is the volume of the resulting solid?
- A.)  $\frac{128}{5}\pi$    B.)  $\frac{256}{5}\pi$    C.)  $\frac{512}{5}\pi$    D.)  $\frac{81}{20}\pi$    E.)  $\frac{243}{20}\pi$    F.)  $\frac{729}{20}\pi$