

Multiple choice questions for sections 6.1, 6.2, 6.3

Math 104, Spring 08

Show your work. No partial credit is given, but a correct guess without supporting work also receives no credit.

1. What is the total area of the region enclosed by the graphs of the functions $y = x^3$ and $y = 2x - x^3$?
A.) $2/3$ B.) $3/4$ C.) $4/5$ D.) 1 E.) $5/4$ F.) $3/2$

2. What is the volume of the solid of revolution generated by rotating the region enclosed by the graphs of $y = x^3$ and $x = y^3$, between $x = 0$ and $x = 1$, around the axis of rotation $y = -1$?

- A.) $\frac{17}{14}\pi$ B.) $\frac{91}{70}\pi$ C.) $\frac{51}{35}\pi$ D.) $\frac{17}{15}\pi$ E.) $\frac{12}{7}\pi$ F.) $\frac{41}{28}\pi$

3. What is the volume of a solid of revolution generated by rotating around the y -axis the region enclosed by the graph of $y = e^{-x^2}$, the x -axis, and the lines $x = 0$ and $x = 2$?
- A.) πe^{-4} B.) $\pi(1 - e^{-4})$ C.) πe^{-2} D.) $\pi(1 - e^{-2})$ E.) πe^4 F.) $\pi(e^4 - 1)$