

Multiple choice questions for sections 6.3, 6.5, 8.1

Math 104, Spring 08

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

1. 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.) $\frac{729}{20}\pi$

2. The velocity $v(t)$ of a moving object is given as a function of time t by the formula

$$v(t) = \sqrt{t} \ln t.$$

Calculate the average velocity between times $t = 1$ and $t = 4$.

A.) $\frac{16}{3} \ln 4 - \frac{28}{9}$

B.) $\frac{16}{9} \ln 4 - \frac{7}{27}$

C.) $\frac{16}{3} \ln 4 - \frac{28}{9}$

D.) $\frac{8}{9} \ln 4 - \frac{7}{27}$

E.) $\frac{8}{3} \ln 4 - \frac{28}{9}$

F.) $\frac{8}{9} \ln 4 - \frac{7}{27}$

3. Integrate

$$\int_0^{\pi^3} \sin(\sqrt[3]{x}) dx.$$

- A.) $2\pi - 3$ B.) $3\pi - 6$ C.) $2\pi^2 - 9$ D.) $3\pi^2 - 12$ E.) $2\sqrt[3]{\pi} - 1$ F.) $3\sqrt[3]{\pi} + 1$