

Multiple choice problems for sections 8.2, 8.3

MATH 104.

Credit is given only if you choose the correct answer *and* show supporting work.

1. Evaluate the following integral

$$\int_0^{\pi/4} \frac{\sec^2 x}{\sqrt{1 - \tan^2 x}} dx.$$

- A.) 1 B.) 2 C.) 4 D.) $\frac{\pi}{4}$ E.) $\frac{\pi}{2}$ F.) π

2. Find the volume of a solid of revolution obtained by rotating the region enclosed by the graph of $y = \sin x$ and the x -axis between $x = 0$ and $x = \pi$ about the y -axis as the axis of revolution.

- A.) π B.) 2π C.) 4π D.) π^2 E.) $2\pi^2$ F.) $4\pi^2$

3. Solve the following indefinite integral,

$$\int \frac{\sqrt{4x^2 - 9}}{x} dx.$$

- A.) $\frac{x}{2} + \sec^{-1} \sqrt{4x^2 - 9} + C$
- B.) $\ln \left| \sec \sqrt{4x^2 - 9} + \tan \sqrt{4x^2 - 9} \right| + C$
- C.) $\ln \sqrt{4x^2 - 9} - 3 \tan^{-1} \frac{2x}{3} + C$
- D.) $\sqrt{4x^2 - 9} - 3 \sec^{-1} \frac{2x}{3} + C$
- E.) $\frac{1}{2} \tan^{-1} \sqrt{4x^2 - 9} + C$
- F.) $\frac{1}{\sqrt{4x^2 - 9}} + \frac{1}{2} \tan^{-1} \frac{2x}{3} + C$