

Multiple choice questions for Chapter 9

Math 104, Spring 09

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

1. What is the arc length of the graph of

$$x^{2/3} + y^{2/3} = 1.$$

Note. The curve is symmetric in both the x and y axes, and the total graph consists of segments in each of the four quadrants.

- A.) 6π B.) $\frac{16}{3}\pi$ C.) $\frac{8}{5}\pi$ D.) 6 E.) $\frac{16}{3}$ F.) $\frac{16}{5}$

2. Find the arc length of the graph of

$$y = \frac{1}{2}e^{2x} + \frac{1}{8}e^{-2x},$$

for the segment with $0 \leq x \leq 1/2$.

A.) $\frac{1}{8}(e - \frac{4}{e} - 3)$

B.) $\frac{1}{8}(2e - \frac{2}{e} - 3)$

C.) $\frac{1}{8}(4e - \frac{1}{e} - 3)$

D.) $\frac{1}{8}(e - \frac{4}{e} + 1)$

E.) $\frac{1}{8}(2e - \frac{2}{e} + 1)$

F.) $\frac{1}{8}(4e - \frac{1}{e} + 1)$

3. Find the area of the surface generated by rotation of the graph of

$$y = x^2 + 1, 0 \leq x \leq \sqrt{2}$$

about the y -axis.

- A.) $3\pi/4$ B.) $4\pi/5$ C.) $\pi/3$ D.) $13\pi/3$ E.) $15\pi/4$ F.) $\frac{\pi}{3}(2\sqrt{2} - 1)$