

Homework for sections 6.3, 6.5, 7.1, 7.2*Math 104, Spring 2007*

Credit is given only if you supportig work is shown. No partial credit is given.

1. Find the volume of the solid of revolution generated by rotating around the y -axis the region enclosed by the graph of

$$y = \cos \frac{\pi x^2}{2}$$

and the x -axis, between $x = 1$ and $x = \sqrt{3}$.

- A.) $\frac{\pi\sqrt{3}}{2}$ B.) 4 C.) $\frac{4\pi}{3}$ D.) 8 E.) 3π F.) 4π

2. The function

$$f(x) = \frac{1 + e^{2x}}{5 + e^{2x}}$$

is one-to-one. What is the formula for the inverse function $f^{-1}(x)$?

- A.) $e^{\frac{-1+5x}{x-1}}$ B.) $\frac{5-\ln x}{1+\ln x}$ C.) $\frac{e^{2x}+5}{e^{2x}+1}$ D.) $\frac{-5e^{2x}+1}{e^{2x}-1}$ E.) $\ln \frac{5x-1}{1-x}$ F.) $\ln \sqrt{\frac{-5x+1}{x-1}}$

3. The function

$$f(x) = \sin \frac{\pi x^2}{2}$$

is one-to-one on the domain $-1 \leq x \leq 1$. Find the value of the derivative

$$(f^{-1})'\left(\frac{1}{2}\right).$$

- A.) $\frac{\pi}{2}$ B.) $\frac{2}{\pi}$ C.) $\frac{\pi}{6}$ D.) $\frac{6}{\pi}$ E.) $\frac{\pi}{\sqrt{3}}$ F.) $\frac{\sqrt{3}}{\pi}$