Calculus 201-NYA-05 C3
Quiz 10
November 29, 2008

Name: SOLUTIONS
Student ID: _____

1. *(6 marks)*. Find the derivative:

a)

$$f(x) = e^{-x^2}$$

$$f'(x) = e^{-x^2} \frac{d}{dx}[-x^2]$$

$$= e^{-x^2} \cdot -2x$$

$$= -2x \cdot e^{-x^2}$$

b)

$$f(x) = \ln\left(\frac{2x}{x+3}\right)$$

$$= \ln 2x - \ln(x+3)$$

$$f'(x) = \frac{1}{2x} \cdot 2 - \frac{1}{x+3} \cdot 1$$

$$= \frac{1}{x} - \frac{1}{x+3}$$

2. *(4 marks).* Find the indefinite integral:

$$\int \frac{e^{1/x^2}}{x^3} dx$$

LET $u = \frac{1}{x^2} = x^{-2}$

$du = -\frac{2}{x^3} dx$

$= \int \frac{e^u}{-2} du$

$= -\frac{1}{2} \int e^u du$

$= -\frac{1}{2} e^u + c$

$= -\frac{1}{2} e^{1/x^2} + C$