Math 2 Winter 2010
Quiz 1   Name: _____

Please show your work.

1. Find $\lim\limits_{x \to 2} 3x^2 + 2x + 1$

2. Find $\lim\limits_{x \to \infty} \dfrac{x^2 + x + 1}{3x^2 - 2}$

3. Find $\lim\limits_{x \to \ln(3)} \dfrac{xe^x}{\ln(3)}$

4. Calculate $f'(x)$ using the limit definition of derivatives, where $f(x) = 3x^2 + 2x + 1$ (you may use the back of this page if necessary).

5. Using any method at your disposal, find the derivatives of the following functions:

a. $f(x) = e^{x^2}$

b. $f(x) = \tan(x)$

c. $f(x) = \sin^2(x) + \cos^2(x)$

6. Find $\lim\limits_{x \to 0} \dfrac{\sin(x)}{x}$

7. Sketch the following graphs:

a. $y = x^3 - x$

b. $y = \sin(x)$

c. $y = \sin(2x)$

d. $y = \tan(x)$

8. Sketch $f(x) = 3 - x^2$, and determine its absolute maximum and minimum values on $[0, 3)$