Math 171 - Quiz 1

Name _____

August 26, 2010

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. Use the quadratic formula to find the exact solutions of $x^2 - 4x + 1 = 0$.

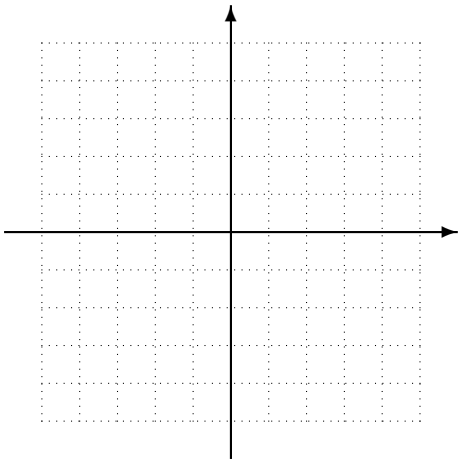
2. Use your calculator to find the two smallest positive solutions of $x \sin x = 1$.

3. Simplify. Then find all values of x for which $f(x) = 0$ or $f(x)$ DNE.

$$f(x) = \frac{(12x + 8)(x + 1)^{3/2} - (9x^2 + 12x)(x + 1)^{1/2}}{4(x + 1)^3}$$

4. Let $y = f(x) = x^3 - 2x + 1$. Find and simplify an expression for $\Delta y = f(x + \Delta x) - f(x)$.

5. Without using your graphing calculator, sketch the graphs of $f(x) = 4x - x^2$ and $g(x) = x^2 - 3x$. Then write and solve the equation that gives the x-coordinates of the two points of intersection.



6. Make sure your calculator is in radian mode. Construct a table showing the values of f at $x = \pm 0.1, \pm 0.01, \pm 0.001, \pm 0.0001$.

$$f(x) = \frac{3x^2}{\tan 4x^2}$$

What is a reasonable estimate for the limit at $x = 0$?

7. Sketch the graph of a function f for which $f(1) = 2$ but $\lim_{x \to 1} f(x) = 3$.