Math 1271 Quiz 8

April, 3, 2014
Name: _____
TA: _____
NO CALCULATORS. NO HANDHELD DEVICES. NO BOOKS OR REFERENCE MATERIALS OF ANY KIND.
Time allowed: 20 minutes; Grader : Amit Sharma. Good luck!

1. (*35 points*) Find the points on the ellipse
$$4x^2 + y^2 = 4$$
that are farthest away from the point $(1, 0)$.

2. (*15 points*) State whether the following statement is true or false:
Let a function f be differentiable at x_n, and suppose that $f'(x_n) \neq 0$. Let L be the tangent line to the graph of f at $(x_n, f(x_n))$. Let x_{n+1} be the x-intercept of L. Then
$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}.$$

PLEASE SEE THE OTHER SIDE FOR MORE PROBLEMS.

3. (*15 points*) State whether the following statement is true or false:
The line $x = 0$ is NOT a vertical asymptote of the function $f(x) = \frac{1}{x}$ because the point $x = 0$ is not in the domain of the function.

4. (*35 points*) Approximate the number $\sqrt{3.98}$ by finding a linearization of the function $f(x) = \sqrt{x+4}$ at the point $(0, 2)$. Show all your work.

PLEASE SEE THE OTHER SIDE FOR MORE PROBLEMS.