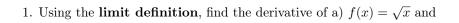
Take Home Quiz 2

Official name (printed):



b)
$$g(x) = x^2$$

c) Use the answers above to find the derivative of
$$h(x) = 5\sqrt{x} + 3x^2$$

d) Use part c) to find the equation to the tangent line to
$$h(x) = 5\sqrt{x} + 3x^2$$
 at $x = 4$.

- 2. When is the function not differentiable? Look for vertical tangents, discontinuites and corners. Tell which of these occurs at the point/points where the function is not differentiable.
- a) $f(x) = (x^2 4)^{1/3}$ (Hint: graph it in your calculator)

b)
$$f(x) = \begin{cases} 3x^2 - 5x + 6, & x < 1\\ 3x^2 + 2, & x \ge 1 \end{cases}$$

- 3. Graph $f'(x) = \frac{9x}{(x^2+3)^2}$ in the window [-5,5] by [-1,1]. This is the derivative of an unknown function f(x).
- a) On what intervals is f(x) increasing?

b) On what intervals is f(x) concave up?