Math 1A
Quiz 7 - October 14, 2009

Name:

1. Use implicit differentiation to show that the derivative of $y = \arctan x$ is $y' = 1/(1+x^2)$.

2. Let $f(x) = 4\arctan(x) - \pi$. Use linear approximation to approximate $f(1.1)$ and draw a sketch of what is going on geometrically. (In the sketch I'm mainly concerned with how you show the approximation, but try to make the graph roughly look like the correct graph).

3. Using the same linear approximation of $f(x)$ from number 2, (i.e. don't solve for anything new), try to approximate $f(1000)$. Do you think this is very accurate? Why or why not? Using your knowledge of $\arctan(x)$ what would be a better approximation for $f(1000)$?