

9am

Quiz 4

Spring 2012

Your name: _____

Math 0220

Your TA's name: _____

No calculators. Show all your work (no work = no credit). Write neatly.

1. [5 points] Evaluate the limit

$$\lim_{x \rightarrow \infty} \left(1 + \frac{4}{x} \right)^x$$

2. [5 points] Find the derivative of the function $\cos(\tan^{-1} 3x)$.

3. [5 points] Find the absolute maximum and absolute minimum values of the function $f(x) = x\sqrt{4 - x^2}$ on the interval $[-1, 2]$. Justify your results.

bonus problem [5 points extra] Evaluate the limit

$$\lim_{x \rightarrow 0} \frac{\tan x - x}{x^3}$$