

9am

Quiz 2

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] Use the Intermediate Value Theorem to show that there is root of the equation $x = \cos x$ in the interval $(0, 1)$. [Hint: To apply IVT first check that the corresponding function satisfies all the conditions of the theorem].

2. [5 points] Find an equation of the tangent line to the curve $y = \sqrt{x}$ at the point $(1, 1)$. To compute the slope use the definition of the derivative.

3. [5 points] Find all horizontal and vertical asymptotes of the curve

$$y = \frac{x^2 + x - 2}{x^2 - 1}$$

bonus problem [5 points extra] Use the definition of the derivative to compute the derivative of the function $f(x) = \sin x$ at a number $x = a$.