9am   **Quiz 3**

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 a linear approximation to estimate the number $\sqrt{9.01}$.

2. [5 points] A plane is flying horizontally at an altitude of 2 mi and a speed of 600 mi/h passes directly over a radar station. Find the rate at which the distance from the plane to the station is increasing when it is 3 mi away from the station.

3. [5 points] Find $(f^{-1})'(1)$ if $f(x) = x^3 + x + 1$.

test problem (a) [5 points] Does the function $f(x) = \dfrac{x^2 - 6x - 7}{4x + 4}$ have removable discontinuity at -1. Support your answer.

(b) [3 points] If the discontinuity is removable, find a function $g(x)$ that agrees with $f(x)$ for $x \neq -1$ and is continuous at -1.