Quiz 4

Fall 2012 **Your name:** _____

Math 0220 **Your TA's name:** _____

No calculators, no notes, no books. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. [4 points] Find an equation of the tangent line to the curve $y = \dfrac{x-2}{x-1}$ at the point $(2, 0)$.

2. (a) [4 points] Does the function $f(x) = \dfrac{\sqrt{x + 10} - 3}{x + 1}$ have removable discontinuity at $x = -1$? Support your answer.

(b) [2 points] If the discontinuity is removable find a continuous function $g(x)$ such that $f(x) = g(x)$ everywhere except at $x = -1$.

bonus problem [5 points extra] Find the limit $\lim\limits_{t\to\infty} \left(\sqrt{t^2 - at} - \sqrt{t^2 - bt}\right)$.