Lecture time: 12 pm **Quiz 2** Quiz time limit: 20 min.

Spring 2015 **Your name:** _____

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

No calculators, no notes, no books are permitted. L'Hospital's rule is not allowed.

SHOW ALL WORK (no work = no credit). Write neatly. Simplify your answers.

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1. (a) [3 points] Does the function $f(x) = \dfrac{x^3 - 1}{x - 1}$ have a removable discontinuity at $a = 1$?

(b) [2 points] If it does then define a continuous function $g(x)$ such that $g(x) = f(x)$ for all $x \neq 1$.

2. For the functions $f(x) = x + \dfrac{1}{x}$ and $g(x) = \dfrac{x+1}{x+2}$

(a) [1 point] Find the function $h(x) = g \circ f$

(b) [2 points] Find the domain of $h(x)$

(c) [2 points] Evaluate the limit $\lim\limits_{x \to -1} h(x)$, if it exists or show that it does not exist.

bonus problem [5 points extra] Is there a number that exactly 1 more than its cube?