

12pm

## Quiz 3

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.

---

1. [8 points] Find the limit  $\lim_{x \rightarrow 0^-} x^3 \sin \frac{3}{x}$ .

2. (a) [8 points] Sketch the graph of the function

$$f(x) = \begin{cases} -x & \text{if } x < -1 \\ x & \text{if } -1 \leq x < 1 \\ (x-1)^2 & \text{if } x \geq 1 \end{cases}$$

(b) [4 points] Use the graph to determine the values of  $a$  for which  $\lim_{x \rightarrow a} f(x)$  exists. In your answer use the interval notation.

bonus problem [5 points extra] Find the limit  $\lim_{t \rightarrow 0} \frac{5t \cot 3t}{\cos 2t}$ .