1pm

Quiz 1

Spring 2012 **Your name:** _____

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

No calculators. Show all your work (no work = no credit). Write neatly.

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1. (a) [4 points] Determine whether the function $f(x) = \dfrac{|x|}{\sin x}$ is even, odd or neither.

(b) [1 point] What is the domain of $f(x)$ inside the interval $[-\pi, \pi]$?

2. [5 points] Evaluate the limit, if it exists. If it does not exist explain why.

$$\lim_{h \to 0^-} \left(\frac{1}{|h|} + \frac{1}{h} \right)$$

In your work mention what Rules, Laws, or Formulas you use.

3. [5 points] Sketch the graph of an example of a function $g(x)$ if it has the domain $[-2, 6)$ and satisfies all the given conditions

$$g(-2) = 1, \quad \lim_{x\to 0^-} g(x) = -2, \quad \lim_{x\to 0^+} g(x) = 2, \quad g(2) \text{ is undefined,}$$
$$g(3) = 5, \quad \lim_{x\to 3^-} g(x) = 3, \quad \lim_{x\to 3^+} g(x) = 1,$$
$$\lim_{x\to 5} g(x) = -2, \quad g(5) = 2, \quad \lim_{x\to 6^-} g(x) = -1.$$

bonus problem [5 points extra] Evaluate the limit, if it exists. If it does not exist explain why.

$$\lim_{\theta \to 0} \frac{\tan(\sin \theta)}{\sin 3\theta}$$