1. Let $f(x)$ be a real valued function defined for all $x \in \mathbb{R}$. Finish this definition.

$$\lim_{x \to p} f(x) = a \text{ if}$$

2. a. Graph the following function which is defined in pieces. $f(x) = 3x + 1$ if $x < 1$. $f(x) = -3x + 7$ if $x > 1$. Note that the function is not defined at $x = 1$.

b. Does $\lim_{x \to 1} f(x)$ exist? If yes, what does this limit equal? (Do not need to do $\delta - \epsilon$).

c. If we wish to produce a function $f(x)$ that is continuous at $x = 1$, what value should we define for $f(x = 1)$?
3. Make a (rough) sketch of the function $y = \sin(1/x)$ for $x > 0$. 