Because of the fact that I took analysis 1 last semester, plus the fact that I'm currently taking analysis 2, I have had lots of exposure to the concept of continuity in the context of real valued functions. The intuition of continuity meaning "never lifting the pen" can be somewhat easily translated to the formal idea of ε-δ continuity. When a function is continuous at a point, say x_0, you can imagine that after placing your pen at x_0, there is always a neighborhood of points in the function around your pen that the pen can travel to. This idea is reminiscent of the ε-δ definition, which states that if f is continuous at x_0, then for every ε-neighborhood around $f(x_0)$, there exists a δ-neighborhood around x_0 such that if x is within the δ-neighborhood, then $f(x)$ is guaranteed to be within the ε-neighborhood. This