1. (Prompt response:)

'Reading ahead,' I think Kurt Gödel's Incompleteness Theorem shows intuition to be essential (necessary and sufficient): There are statements that all the rigor in the world can't prove. That said, Mr. Gödel reached that conclusion only through his own rigorous (and ingeneous/intuition-based) encoding of Whitehead's/Russell's *Principia Mathematica*, itself a work of pristine rigor. I think the argument falls in a similar place to nature vs. nurture, form vs. function: An increase in mathematical rigor frees the means by which a thinker may express mathematical truths; Intuiting mathematical truths not yet expressable forces the thinker to build a matching rigor.

2. (Personal reflection:)

This week led me to think on limits and undefined elements, such as $\frac{0}{0}$. I fell into the trap of assuming that the limit of a ratio was equivalent to a ratio of limits, thinking there was light at the end of the tunnel; however:

$$\lim_{n\to\infty} \frac{(1/n)}{(1/n)} = 1 \neq \frac{\lim_{n\to\infty}(1/n)}{\lim_{n\to\infty}(1/n)} \stackrel{H}{=} \frac{(-1)^{\infty}(n^{-\infty})}{(-1)^{\infty}(n^{-\infty})} = \text{undefined.}$$

I am interested in which operations are allowed for undefined values, though. What *can* we know about $\frac{0}{0}$ vs. $\frac{1}{0}$ vs. $\frac{\infty}{\infty}$ vs. any other undefined value? Surely, there must be *some* distinguishing properties between each of these entities--Perhaps, this means it's time for Cantor to make an appearance...