Math 190 Lab 3: Sept 29 and Oct 1

Work through the following problems while the instructor and TA circulate. When you have completed the problems (to the satisfactory of the facilitators) you can spend the rest of the lab working on the weeks homework.

Warm up:

- Sketch the graph of e^x.
- Sketch the graph of $\ln x$.
- What is the domain of $\log_b x$?
- Simplify

$$\frac{(\sqrt{e}e^{x^2}e^{-5x})^2}{e^4}.$$

Questions:

1. Recall that $y = \log_b x$ is equivalent to $x = b^y$. Recall also that $\log_b(b^x) = x$ and that $b^{\log_b x} = x$. Use these facts to solve the following
   (a) $2^{3x} = 5$
   (b) $\ln(x + 1) = 3$
2. Find all x satisfying the following
   (a) $\log_{10}(x - 1) + \log_{10}(5) = \log_{10}(20)$
   (b) $e^{2\ln x} = 7$
   (c) $\ln(3e^{2x}) = 4$