Sixth Quiz for Math 30, section 6432

Directions: You should fully justify your answers. Do all your work on separate paper, and make sure to *print* your name in the first sheet and staple all the sheets together. **Unstapled, loose pieces of paper will not be graded.** This quiz is due Wednesday April 9, at 6:00 PM.

1. Find x:

   (a) $2^x = \dfrac{1}{64}$

   (b) $3^x = \sqrt[4]{27}$

2. Find the domain of the following functions:

   (a) $f(x) = \log_6(2x - 5)$

   (b) $g(x) = \ln(3 - 9x)$

   (c) $h(x) = \log(x^2 + 2x - 8)$

3. Simplify the following expressions as much as you can:

   (a) $\log_5 3 + \log_5 9 - \log_5 27$

   (b) $\ln x - \ln \sqrt{x} + \ln \dfrac{1}{x^2} + \ln x^3$

   (c) $2 \ln x \sqrt{y} - \ln x^2$

4. Find x:

   (a) $\log x = 3$

   (b) $\log_2(x + 1) - \log_2 x = 1$