Name_____

22M:002

May 5, 2004

Score (100 possible)_____

Exam #3

Answer each question to the best of your ability. Show all of your work.

1. Find the inverse of each of the following functions when possible. If no inverse exists, explain why. (5 points each)

   a. $f(x) = 2x + 4$

   b. $g(x) = x^2 + 3$

   c. $h(x) = \dfrac{6x + 2}{x}$

2. Solve each of the following equations for x. (5 points each)

   a. $3^{2x-5} = 13$

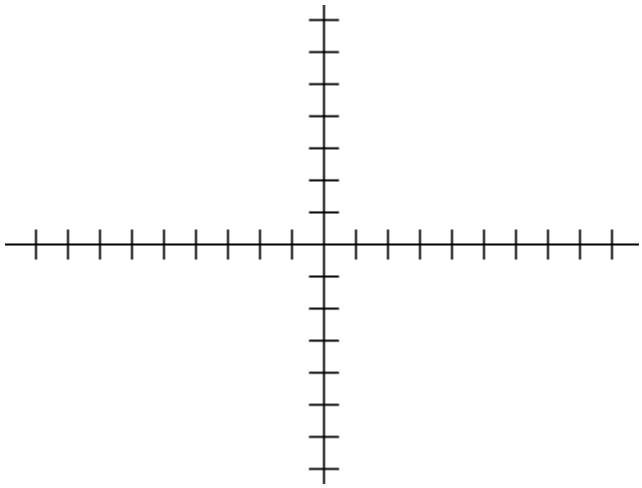
   b. $10e^{3x-7} = 5$

   c. $\log_2 3x + \log_2 3 = \log_2 (2x + 15)$

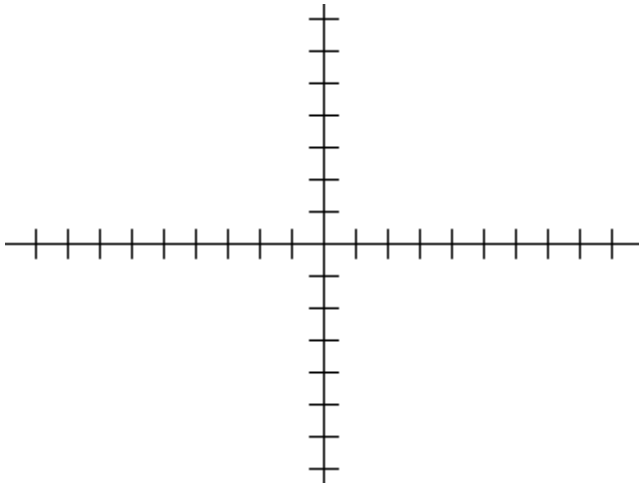
   d. $6^{x-3} = 3^{4x+1}$

3. Graph each of the following functions. (10 points each)

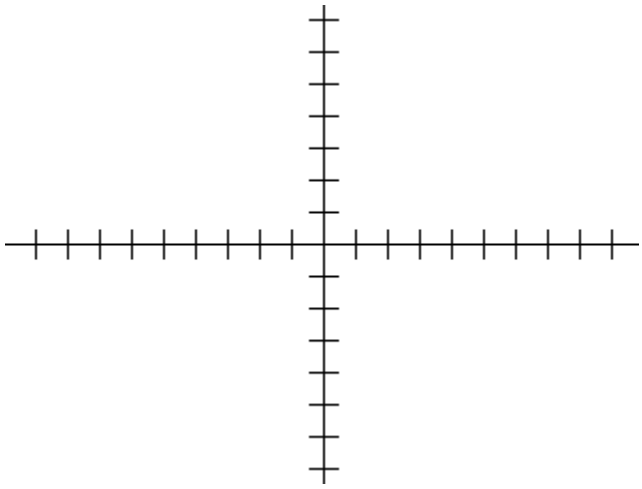
a. $f(x) = 4^x$



b. $f(x) = \left(\frac{1}{3}\right)^{x-4}$



c. $f(x) = \log_3(x-1) + 2$



4. Use the change of base theorem to change the logarithm to $\log_{10}$ ***and*** ln. (5 points for each part)

a. $\log_2 10$

b. $\log_8 0.59$

5. Find the inverse of the following exponential/logarithmic functions. (5 points each)

a. $f(x) = \log_3(x-1) + 2$

b. $f(x) = e^{x+1} - 4$

c. $f(x) = 2\ln 3x$