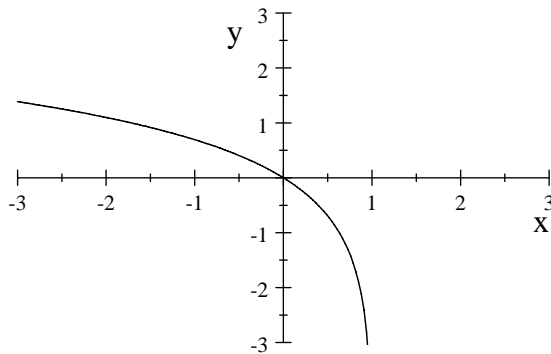


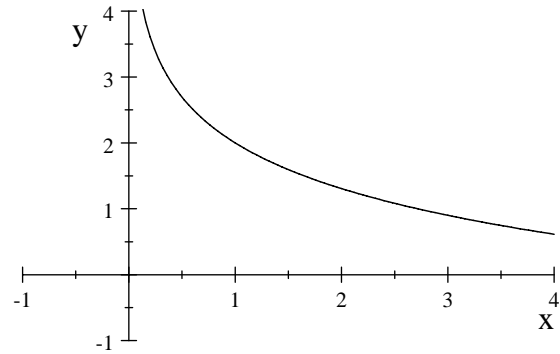
MATH. 125, QUIZ 1 - Section 3.2 (second part) and 3.3 (25points = 5% final grade) - **NO CALCULATOR ALLOWED** - Fall 2009

1. (2 points each) Match the graphs below to one of the following functions, indicate your choice by writing a letter a, b, c, or d below the graph:

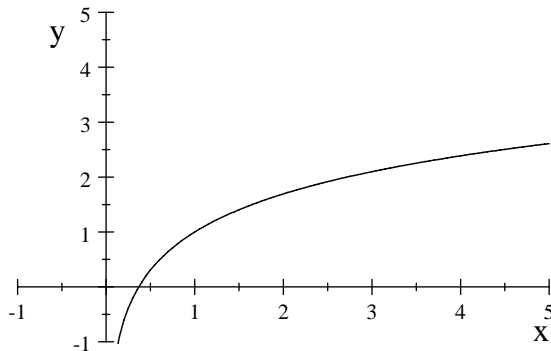
a) $y = \log(1 - x)$ b) $y = 1 + \ln x$ c) $y = 2 - \ln x$ d) $y = \ln(-x)$



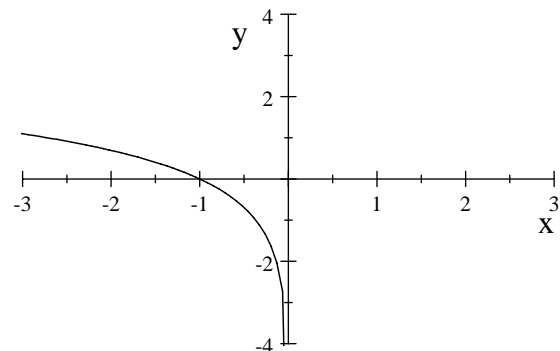
$y = \log(1 - x)$



$y = 2 - \ln x$



$y = 1 + \ln x$



$y = \ln(-x)$

2. (2 points each) Knowing that $\ln x = 2$; $\ln y = -1$; $\ln z = \frac{1}{3}$ find exact numerical values of the following expressions. **Show your work.**

(a) $\ln\left(\frac{xy}{z}\right) = \ln x + \ln y - \ln z = 2 - 1 - \frac{1}{3} = \frac{2}{3}$

(b) $\ln(xy^2z^{-1}) = \ln x + 2\ln y - \ln z = 2 - 2 - \frac{1}{3} = -\frac{1}{3}$

(c) $\ln(z^{-1}e^4) = -\ln z + \ln e^4 = -\frac{1}{3} + 4 = 3\frac{2}{3}$

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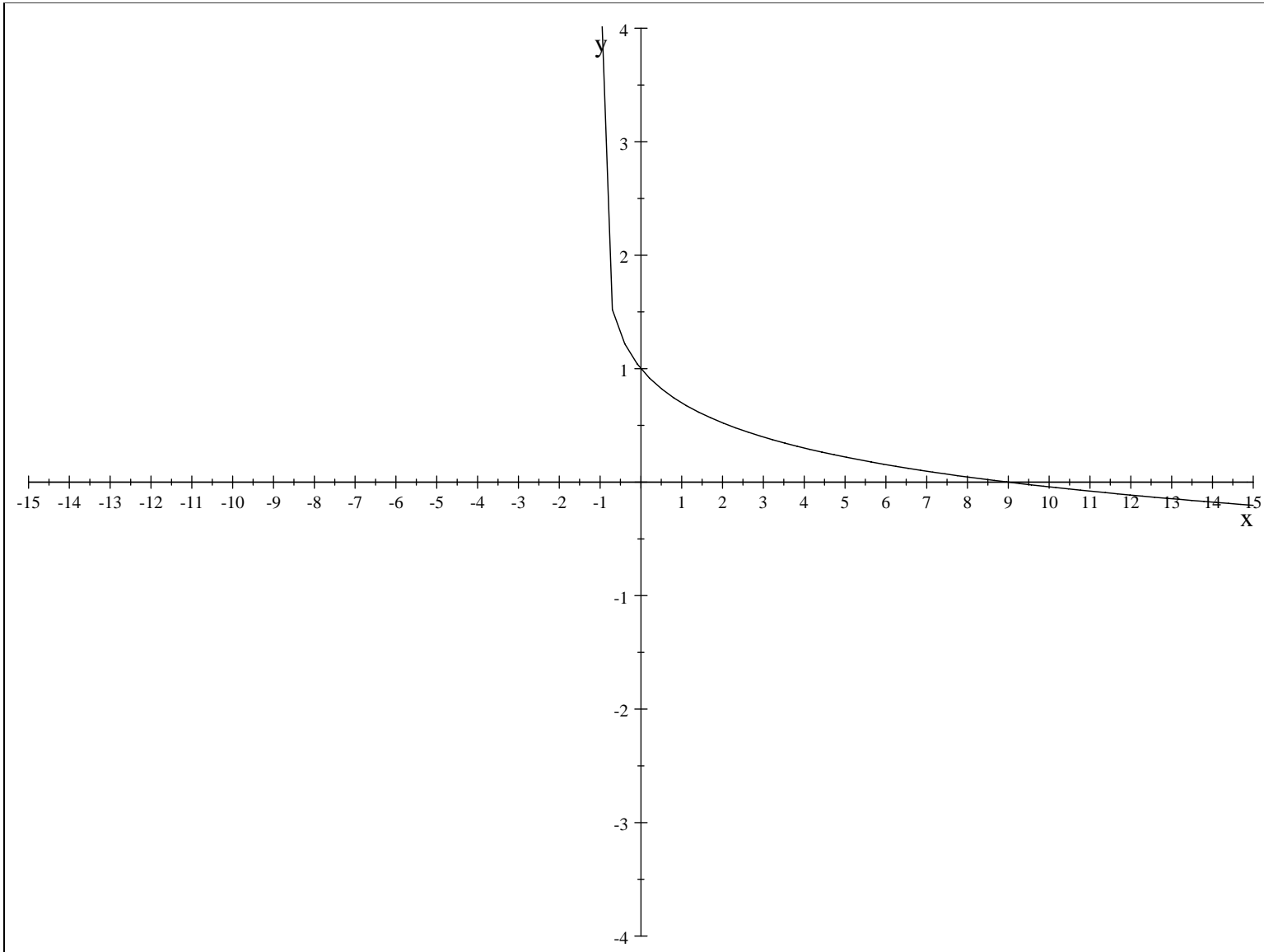
3. (2 points) Use properties of logarithms to condense the following expressions; write the answers as single logarithm.

(a) $2 \log x + 3 \log y = \log (x^2 y^3)$

(b) $5 \ln (x + 6) - 2 \ln (x - 7) + \ln y = \ln \frac{(x+6)^5 y}{(x-7)^2}$

4. (7 points) Graph the following function indicating clearly the x-intercept and the y-intercept

$$f(x) = 1 - \log_{10}(1 + x)$$



5. (2 points) Find the domain of $f(x) = 1 - \ln(7 - x)$; provide a brief explanation of your answer.

Solution: Since $7 - x$ must be strictly positive, the domain consists of all real numbers smaller than 7; domain = $(-\infty, 7)$.