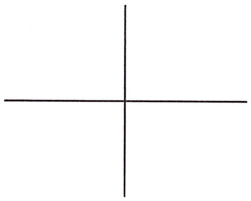
Logs: Fact or Fiction?
No calculator for this side!

Name: _____

Period: _____

1. Sketch these.

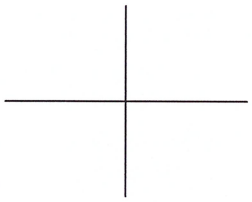
a. $y = \ln x$



Domain:

Range:

b. $y = e^x$



Domain:

Range:

2. Fill in the blank.

a. $\log_2 16 = 4$ means _____

b. $\log_3 \frac{1}{27}$ = _____

c. log 0.0001 = _____

d. log 100,000 = _____

e. ln x = y means _____

f. ln 1 = _____

3. Which are true?

a. $\ln xy = \ln x + \ln y$

b. $\ln ax = \ln x + c$ (c is a constant)

c. $\ln \frac{x}{y} = \ln x - \ln y$

d. $\ln \frac{1}{x} = -\ln x$

e. $\ln x^a = a \ln x$

f. $\ln(-x) = 0$

4. Evaluate:

a. ln 0 = _____

b. $\ln \sqrt{x}$ = _____

c. $\ln e^{x^2}$ = _____

d. ln 1 = _____

e. $\ln e^3$ = _____

f. ln (-1) = _____

g. ln e = _____

h. $\ln e^x$ = _____

i. ln 0.5 = _____

j. $\ln e^{f(x)}$ = _____

k. ln 2 = _____

l. $\ln 10^3$ = _____

5. Simplify.

a. $e^{\ln x}$

b. $\ln e^{x}$

c. $e^{-\ln x}$

d. $\ln e^{-x^2}$

e. $\ln e^{4x}$

f. $\ln \frac{1}{e^{x}}$

g. $e^{\ln 2 + \ln x}$

h. $e^{2 \ln x}$

i. $\ln (e^{x - x^2})$

j. $e^{x+\ln x}$

k. $\ln (x^2 e^{-2x})$

l. $e^{\ln x - 2\ln y}$

6. Solve for y.

a. $e^{\sqrt{y}} = x^2$

b. $e^{2y} = x^2$

c. $e^{x^2} \cdot e^{2x+1} = e^{y}$

d. $\ln (y-1) = x + \ln x$

e. $\ln (y-2) = \ln (\sin x) - x$

f. $\ln (y^2 - 1) - \ln (y+1) = \sin x$