

Name: _____

Date: _____

Homework: Introduction to Logarithms

Write each equation in logarithmic form.

1) $5^3 = 125$

2) $e^x = y$

3) $x^{\frac{1}{2}} = \frac{1}{49}$

4) $b^{-3} = \frac{1}{a}$

Write each equation in exponential form.

5) $\log_{11} 121 = 2$

6) $\log_{\frac{1}{2}} 512 = -9$

7) $\log_e x = 7.17$

8) $\log_{625} 25 = y$

Evaluate each expression.

9) $\log_7 343$

10) $\log_{\frac{1}{2}} \frac{1}{32}$

11) $\log_8 \frac{1}{512}$

12) $\log_8 2$

13) Complete the table below for the values of y for the equation $y = \log_3 x$

x	$\frac{1}{9}$	$\frac{1}{3}$	1	3	9	27
y						

14) Which is larger, $\log_6 35$ or $\log_5 26$? Explain your reasoning.

15) Elisa and Matthew are evaluating $\log_{\frac{1}{7}} 49$. Is either of them correct? Explain your reasoning WITHOUT USING A CALCULATOR.

Elisa

$$\log_{\frac{1}{7}} 49 = y$$

$$\left(\frac{1}{7}\right)^y = 49$$

$$(7^{-1})^y = 7^2$$

$$7^{-y} = 7^2$$

$$y = 2$$

Matthew

$$\log_{\frac{1}{7}} 49 = y$$

$$49^y = \frac{1}{7}$$

$$(7^2)^y = 7^{-1}$$

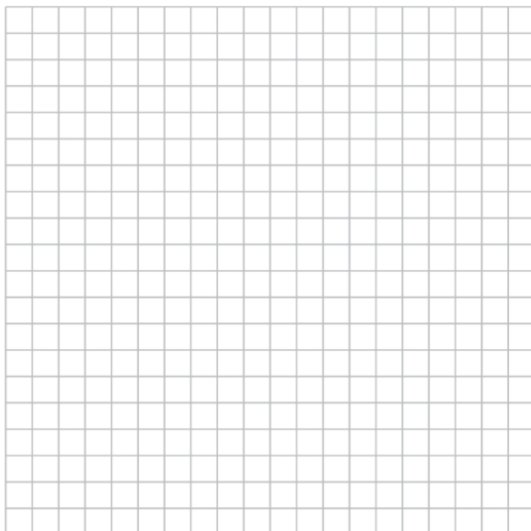
$$7^{2y} = 7^{-1}$$

$$2y = -1$$

$$y = -\frac{1}{2}$$

16) Find the inverse of $y = 6^x$.

Graph the inverse of $y = 6^x$ on the graph below and complete:



Domain: _____

Range: _____

Asymptote: _____

X-Intercept: _____