Practice Worksheet: Evaluating Logarithms

Rewrite the equation in exponential form.

1] $\log_7 49 = 2$

2] $\log_5 125 = 3$

3] $\log_4 \frac{1}{4} = -1$

4] $\log_2 16 = 4$

5] $\log_{16} 4 = \frac{1}{2}$

6] $\log_3 \frac{1}{9} = -2$

Rewrite the equation in logarithmic form.

7] $13^2 = 169$

8] $9^{3/2} = 27$

9] $4^{-3} = \frac{1}{64}$

10] $10^{-3} = 0.001$

11] $64^{\frac{1}{2}} = 8$

12] $9^{-2} = \frac{1}{81}$

13] $12^2 = 144$

14] $\left(\frac{1}{12}\right)^2 = \frac{1}{144}$

Evaluate the logarithm without using a calculator. Show work to support your answer.

15] $\log_9 81 =$	16] $\log_{27} 3 =$	17] $\log_4 32 =$
18] $\log_8 1 =$	19] $\ln e^4 =$	20] $\log_8 4 =$
21] $\log_3 \frac{1}{3} =$	22] $\log 1000 =$	23] $\log_{\frac{1}{2}} 128 =$
24] $\log_4 2 =$	25] $\log_{25} 125 =$	26] $\log_3 \frac{1}{243} =$
27] $\log_4 64 =$	28] $\log_{64} 4 =$	29] $\log_6 \frac{1}{216} =$

Circle the points which are on the graph of the given logarithmic functions. Show your work.

30] $y = 2\log_3(x-4) + 5$ $\qquad$ (5, 3) $\qquad\qquad$ (7, 7) $\qquad\qquad$ (13, 9)

31] $y = -\log_{\frac{1}{2}}(2x) - 1$ $\qquad$ (4, 2) $\qquad\qquad$ (8, 3) $\qquad\qquad$ (16, 5)

32] $y = \log_2 2(x+1) - 4$ $\qquad$ (0, 3) $\qquad\qquad$ (3, 1) $\qquad\qquad$ (15, 1)