Name: __Selected__ Answers

Defining and Evaluating Logarithms

Write the following in logarithmic form.

1. $5^3 = 125$

$$\log_5 125 = 3$$

2. $3^3 = 81$

3. $4^3 = x$

$$\log_4 x = 3$$

4. $10^5 = 100000$

5. $e^4 \approx 54.6$

$$\ln 54.6 \approx 4$$

Write the following in exponential form.

6. $\log_6 1296 = 4$

7. $\log_8 x = y$

$$8^y = x$$

8. $\log_2 x = 5$

9. $\ln 5 \approx 1.6$

$$e^{1.6} \approx 5$$

10. $\log 1,000,000 = 6$

11. If $f(x) = \log_3 x$, find $f(243)$ and $f(2187)$

$$f(243) = \log_3 243 = \boxed{5} \qquad 3^? = 243$$

$$f(2187) = \log_3 2187 = \boxed{7} \qquad 3^? = 2187$$

12. If $f(x) = \log_6 x$, find $f(36)$ and $f(1296)$

Name: _____

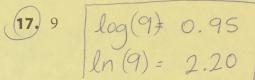13. Find the exact value of the following:

(a.) $\log_2 8 = x = \boxed{3}$

$2^x = 8$

$2^3 = 8$

b. $\log_5 625 =$

Use a scientific calculator to find the common logarithm and the natural logarithm of the given number. Verify each result by evaluating the appropriate exponential expression.

log x

16. 19   *ln(x)*

17. 9 $\log(9) = 0.95$
$\ln(9) = 2.20$

18. 0.6

19. 0.31

$\log(0.31) = -0.51$

$\ln(0.31) = -1.17$