

Read Text p. 324 - 327

5.3.1 Evaluating Simple Logarithmic Expressions

Evaluate simple logarithmic expressions using the relationship between powers and logarithms. One strategy is to replace the value with its equivalent power.

$\text{Value} = \text{Base}^{\text{Exponent}}$	$\text{Exponent} = \log_{\text{Base}} \text{Value}$
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Examples: $\log_2 16 = \log_2 (2^4)$
 $= 4$

$$\log_5 25 = \log_5 (5^2)$$
$$= 2$$

Exercises

1. Evaluate each logarithm.

a) $\log_2 4$

b) $\log_3 27$

c) $\log_2 32$

d) $\log_7 49$

e) $\log_5 (1/5)$

f) $\log_6 1$

2. Write each logarithm in exponential form.

a) $\log_2 8 = 3$

b) $\log_6 36 = 2$

c) $\log_{16} 4 = \frac{1}{2}$

d) $\log_5 625 = 4$

e) $\log_3 3 = 1$

f) $\log_{10} 1 = 0$

3. Write each exponential equation in logarithmic form.

a) $3^7 = 2187$

b) $6^6 = 46656$

c) $5^{-2} = 0.04$

d) $7^3 = 343$

e) $8^4 = 4096$

f) $16^{1.5} = 64$