

1. Rewrite the following **exponential statements** as **logarithmic statements**. (**EXP**→**LOG**)

a. $125 = 5^3$

b. $2^6 = 64$

c. $4^x = 16$

d. $243 = x^5$

e. $e^x = 9$

f. $x = e^5$

2. Rewrite the following **logarithmic statements** as **exponential statements**. (**LOG** → **EXP**)

a. $3 = \log_2(8)$

b. $5 = \log_x(243)$

c. $\log_6(x) = 3$

d. $\ln(x) = 5$

e. $\log_4(256) = 2x$

f. $x = \ln(3)$

3. Evaluate the following basic logarithm statements.

a. $\log_2(32)$

b. $\log_7(49)$

c. $\log_6(6)$

d. $\log_4(256)$

e. $\log(1000)$

f. $\ln(e^7)$

4. Evaluate the following logarithm statements.

a. $\log_5(5^{12})$

b. $(\log_3(3^x))^2$

c. $\log_3(9^3)$

d. $\log_2(16^5)$

e. $4^{\log_4(16)}$

f. $3^{\log_3(81)}$

d. $5^{\log_5(12)}$

e. $4^{\log_2(32)}$

f. $e^{\ln(5x)}$

Evaluate the following using the prime factorization of 9^4 .

$\log_3(9^4)$

Evaluate the following using a recognized property.

$\log_3(9^4)$

5. Rewrite each of the following using the property above.

- a. $\log_5(25^3)$
- b. $\log_3(14^5)$
- c. $\ln(9^3)$

Evaluate the following with your calculator by changing the base to 3 decimal places
(show the work to provide reasoning)

$\log_2 9 = x$

6. Evaluate the following with your calculator by changing the base to 3 decimal places

- a. $\log_5(50)$

b. $\log_8(12)$

c. $\log_4(4194304)$
- d. $\log_3(212)$

e. $\log(532)$

f. $\ln(28)$