

EXTRA PRACTICE — Exercises

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Unit X – Exponential and Logarithmic Functions

Part B – Logarithmic Functions

Lesson 1 – Log Functions As Inverses of Exponential Functions

For the following, rewrite each exponential equation in logarithmic form, and each logarithmic equation in exponential form.

1. $5^{-3} = y$

2. $t = \log_5 9$

3. $w = \log_4 10$

4. $\log_t Q = K$

5. $P^m = V$

6. $\log_k 3 = P$

7. $\log_m P = a$

8. $\log_e 7.3891 = 2$

9. $P^k = 3$

10. $Q^t = x$

For each of the following, tell whether the logarithmic statement is true or false by considering it in exponential form.

11. $\log_6 36 = 6$

12. $\log_7 1 = 7$

13. $\log_4 \frac{1}{1024} = -5$

14. $\log_{10} 0.001 = -3$

15. $\log_2 \frac{1}{4} = -2$

16. $\log_8 2 = \frac{1}{3}$

17. $\log_3 \frac{1}{9} = -2$

18. $\log_7 1 = 0$

19. $\log_{\frac{1}{4}} 64 = 3$

20. $\log_5 0 = 1$

EXTRA PRACTICE — Answers

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Lesson 1 – Log Functions As Inverses of Exponential Functions

For the following, rewrite each exponential equation in logarithmic form, and each logarithmic equation in exponential form.

- 3 is the exponent, to the base 5, that will give us y .
- The logarithm(exponent), to the base 5, that will give us 9, is t
- The logarithm(exponent), to the base 4, that will give us 10, is w
- The logarithm(exponent), to the base t , that will give us Q , is K
- m is the exponent, to the base p , that will give us V
- The logarithm(exponent), to the base K , that will give us 3, is P
- The logarithm(exponent), to the base m , that will give us P , is a
- The logarithm(exponent), to the base l , that will give us 7.3891, is 2
- K is the exponent, to the base p , that will give us 3
- t is the exponent, to the base Q , that will give us X

For each of the following, tell whether the logarithmic statement is true or false by considering it in exponential form.

11. $6^6 = 36$ True

12. $7^7 = 1$ False

13. $4^{-5} = \frac{1}{1024}$ True

14. $10^{-3} = 0.001$ True

15. $2^{-2} = \frac{1}{4}$ True

16. $8^{\frac{1}{3}} = 2$ True

17. $3^{-2} = \frac{1}{9}$ True

18. $7^0 = 1$ True

19. $\frac{1}{4}^3 = 64$ False

20. $5^1 = 0$ False