

1. What is the inverse of the function  $y = \log_3 x$ ?

- (1)  $y = 3^x$       (2)  $x = 3^y$       (3)  $y = \log_x 3$       (4)  $y = x^3$

2. The equation  $\log_a x = y$  where  $x > 0$  and  $a > 1$  is equivalent to

- (1)                      (2)                      (3)                      (4)

3. The function  $y = 2^x$  is equivalent to

- (1)  $x = y \log 2$    (2)  $x = \log_2 y$    (3)  $y = \log_2 x$    (4)  $y = x \log 2$

4. Which is the equivalent exponential form of  $\log_b N = x$ ?

- (1)  $x^b = N$       (2)  $b^x = N$       (3)  $b^N = x$       (4)  $N^b = x$

5. If  $\log_b x = y$ , then  $x$  equals

- (1)  $y^b$               (2)                      (3)  $y \cdot b$               (4)  $b^y$

6. Which logarithmic equation is equivalent to

$$L^m = E?$$

- (1)  $\log_E m = L$                       (2)  $\log_m E = L$   
(3)  $\log_L E = m$                       (4)  $\log_E L = m$

7. Which equation is equivalent to  $y = 3^x$ ?

- (1)  $\log_3 x = y$    (2)  $\log 3 = x$    (3)  $\log_3 y = x$    (4)  $\log_y x = 3$

8. The equation  $y = a^x$  expressed in logarithmic form is

- (1)  $x = \log_a y$    (2)  $x = \log_y a$    (3)  $y = \log_a x$    (4)  $a = \log_x y$

9. If  $\log_b n = y$ , then  $n$  equals

- (1)  $b^y$               (2)  $y^b$               (3)  $y \cdot b$               (4)

10. Solve for  $x$  in terms of  $a$  and  $b$ :

$$\log_b x = a$$

11. If \_\_\_\_\_ and \_\_\_\_\_, then \_\_\_\_\_ equals \_\_\_\_\_

(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_ (4) \_\_\_\_\_

12. Write \_\_\_\_\_ as a single term with a rational exponent.

13. Express \_\_\_\_\_ in simplest form, using only positive exponents.

14. Determine the exact value of \_\_\_\_\_ as a fraction in simplest form.

15. The expression \_\_\_\_\_ • \_\_\_\_\_ is equivalent to \_\_\_\_\_

(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_ (4) \_\_\_\_\_

16. Explain how \_\_\_\_\_ can be written as the equivalent radical expression \_\_\_\_\_.

17. The expression \_\_\_\_\_ is equivalent to \_\_\_\_\_

(1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_ (4) \_\_\_\_\_

18. When  $b > 0$  and  $d$  is a positive integer, the expression is equivalent to

(1)

(2)

(3)

(4)

