Practice 25

Logarithmic Functions

Write the equation in its equivalent exponential form.

1) $\log_2 16 = x$ 1) _____

A) $16^2 = x$ B) $16^x = 2$ C) $x^2 = 16$ D) $2^x = 16$

2) $\log_3 9 = 2$ 2) _____

A) $9^2 = 3$ B) $3^2 = 9$ C) $3^9 = 2$ D) $2^3 = 9$

Write the equation in its equivalent logarithmic form.

3) $5^3 = 125$ 3) _____

A) $\log_3 125 = 5$ B) $\log_5 3 = 125$

C) $\log_5 125 = 3$ D) $\log_{125} 5 = 3$

4) $3^2 = x$ 4) _____

A) $\log_2 x = 3$ B) $\log_x 3 = 2$ C) $\log_3 2 = x$ D) $\log_3 x = 2$

Evaluate the expression without using a calculator.

5) $\log_3 27$ 5) _____

A) 9 B) $\frac{1}{3}$ C) 3 D) 1

6) $\log_{10} 100$ 6) _____

A) -2 B) 2 C) $\frac{1}{100}$ D) 20

7) $\log_{10} \sqrt{10}$ 7) _____

A) 10 B) $\frac{1}{10}$ C) 1 D) $\frac{1}{2}$

8) $\log_5 125$ 8) _____

A) $\frac{1}{3}$ B) 1 C) 3 D) 15

9) $\log_{10} 10$ 9) _____

A) $\frac{1}{10}$ B) -1 C) 1 D) 10

10) $\log_8 \sqrt{8}$ 10) _____

A) $\frac{1}{8}$ B) $\frac{1}{2}$ C) 1 D) 8

11) $\log_4 1$ 11) _____

A) $\frac{1}{4}$ B) 1 C) 0 D) 4

12) $\log_3 3$ 12) _____

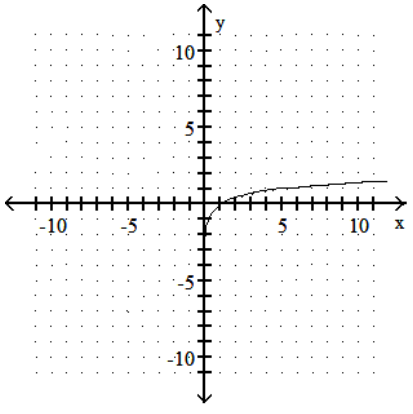
A) 0 B) 3 C) 1 D) $\frac{1}{3}$

13) $9^{\log_9 10}$ 13) _____

A) $\log_9 10$ B) 19 C) 9 D) 10

The graph of a logarithmic function is given. Select the function for the graph from the options.

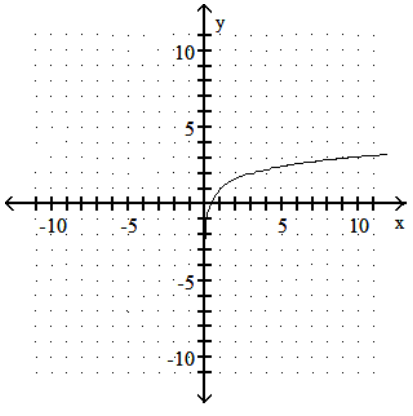
14) 14) _____



A) $f(x) = \log_5 (x + 1)$ B) $f(x) = \log_5 (x - 1)$

C) $f(x) = \log_5 x - 1$ D) $f(x) = \log_5 x$

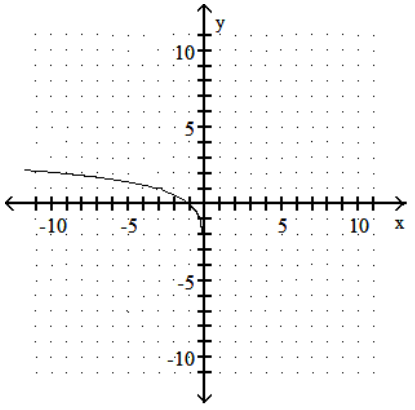
15) 15) _____



A) $f(x) = \log_3 (x - 1)$ B) $f(x) = \log_3 x + 1$

C) $f(x) = \log_3 x$ D) $f(x) = \log_3 (x + 1)$

16) 16) _____



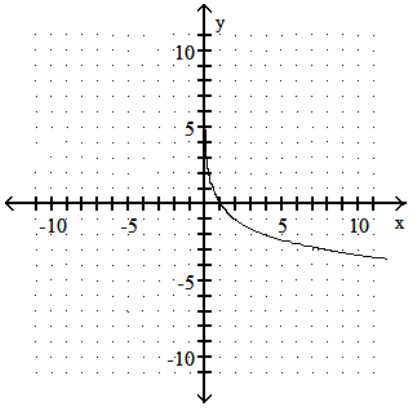
A) $f(x) = 1 - \log_3 x$

B) $f(x) = \log_3 (-x)$

C) $f(x) = -\log_3 x$

D) $f(x) = \log_3 x$

17) 17) _____



A) $f(x) = -\log_2 x$

B) $f(x) = \log_2 (-x)$

C) $f(x) = \log_2 x$

D) $f(x) = 1 - \log_2 x$

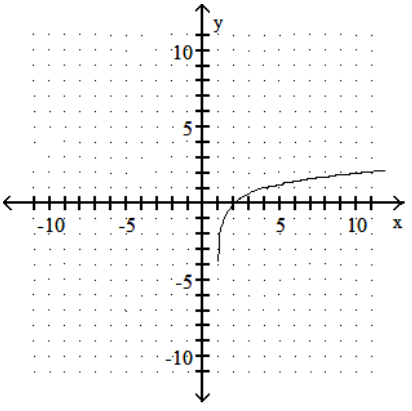
Graph the function.

18) Use the graph of $\log_3 x$ to obtain the graph of $f(x) = \log_3 (x - 1)$. 18) _____

19) Use the graph of $\log_4 x$ to obtain the graph of $f(x) = 1 + \log_4 x$. 19) _____

Answer Key
Testname: 25_LOGARITHMIC FUNCTIONS

1) D
2) B
3) C
4) D
5) C
6) B
7) D
8) C
9) C
10) B
11) C
12) C
13) D
14) D
15) B
16) B
17) A
18)



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