

(1-4) Rewrite the equation in exponential form.

1) $\log_4 16 = 2$

$4^2 = 16$

2) $\log_7 343 = 3$

$7^3 = 343$

3) $\log_6 \frac{1}{36} = -2$

$6^{-2} = \frac{1}{36}$

4) $\log_{64} 1 = 0$

$64^0 = 1$

(5-10) Evaluate the logarithm without using a calculator.

5) $\log_{15} 15$

1

6) $\log_6 216$

3

7) $\log_9 1$

0

8) $\log_3 \frac{1}{27}$

-3

9) $\log_{\frac{1}{4}} 16$

-2

10) $\log_5 625$

4

(11-14) Use a calculator to evaluate the logarithm.

11) $\log 14$

 ≈ 1.15

12) $\ln 0.43$

 ≈ -0.84

13) $\log 27$

 ≈ 1.43

14) $\log 0.746$

 ≈ -0.13 **(15-18) Simplify the expression.**

15) $7^{\log_7 x}$

x

16) $30^{\log_{30} 4}$

4

17) $\log_6 36^x$

2x

18) $\log_5 125^x$

3x

19) MULTIPLE CHOICE Which expression is equivalent to $\log 100^x$?

A. x

B. 2x

C. 10x

D. 100x

(20-23) Find the inverse of the function.

20) $y = 7^x$

$$y = \log_7 x$$

21) $y = \log_{\frac{1}{2}} x$

$$y = \left(\frac{1}{2}\right)^x$$

22) $y = 2^x - 3$

$$y = \log_2 (x + 3)$$

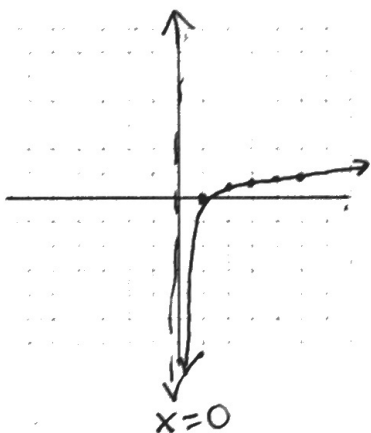
23) $y = 6 + \log x$

$$y = 10^{x-6}$$

(24-27) Graph the function. State the domain and range.

24) $y = \log_6 x$

x	y
1	0
2	0.39
3	0.61
4	0.77
5	0.90

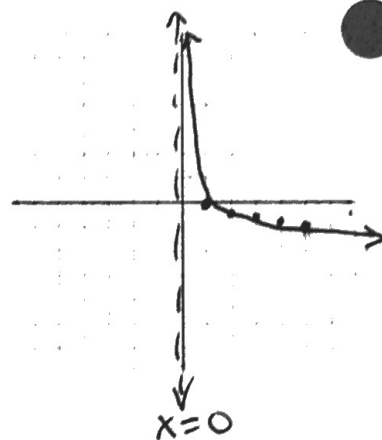


D: $x > 0$

R: \mathbb{R}

25) $y = \log_{\frac{1}{5}} x$

x	y
1	0
2	-0.43
3	-0.68
4	-0.86
5	-1

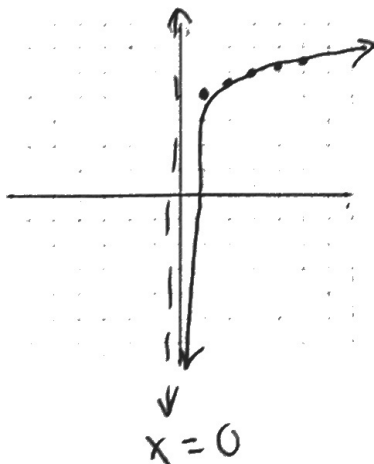


D: $y > 0$

R: \mathbb{R}

26) $y = \log_3 (x+4)$

x	y
1	4
2	4.63
3	5
4	5.26
5	5.46

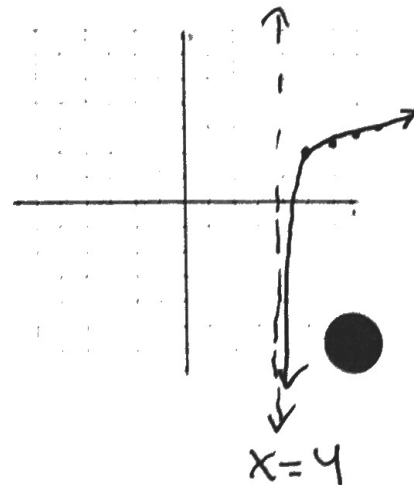


D: $x > -4$

R: \mathbb{R}

27) $g(x) = \log_6 (x-4) + 2$

x	y
5	2
6	2.39
7	2.61
8	2.77
9	2.90



D: $x > 4$

R: \mathbb{R}