6.4 Practice Problems

Write the equation in its equivalent logarithmic form.

1. $5^3 = 125$

2. $\sqrt{16} = 4$

Write the equation in its equivalent exponential form.

3. $2 = \log_7(49)$

4. $-1 = \log_4\left(\frac{1}{4}\right)$

5. Find the domain of the logarithmic functions.

a. $f(x) = \log(x-7)$

b. $g(x) = \log_2(9-x)$

c. $h(x) = \ln(x+2)^2$

e. $p(x) = \log_2\left(\frac{x+3}{x-6}\right)$

Evaluate the expressions without using a calculator.

6. $\log_9 1$

7. $\log_7 343$

8. $\log 1{,}000{,}000$

9. $\log_{81} 3$

10. $\log_5\left(\frac{1}{125}\right)$

11. $\log_7 7$

Solve the following logarithmic equations.

12. $\log_3(x+5)=4$

13. $\log_x 16=4$

Solve the following exponential equations using logarithms.

14. $10^x=19$

15. $e^{3x}=2$

Matching: Match the logarithmic function with the graph of its equation.

$f(x)=\log_2 x$ $g(x)=\log_2(-x)$ $h(x)=\log_2(x-1)$ $p(x)=(\log_2 x)-1$

$q(x)=-\log_2 x$ $F(x)=-\log_2(-x)$ $G(x)=1-\log_2 x$ $H(x)=\log_2(1-x)$