

Directions: For problems 1 – 3, write each exponential equation in logarithmic form.

1. $e^{x+2} = 7$

2. $4 = 5^{-3x}$

3. $10^x = x + 3$

Directions: For problems 4 – 6, write each logarithmic equation in exponential form.

4. $\ln(3x) = -2$

5. $1 = \log(x)$

6. $\log_7(e^x) = 3$

Directions: Evaluate the following expressions without a calculator.

7. $\log_2 16$

8. $\ln e^{-3}$

9. $\log \frac{1}{1000}$

10. $\log_3 27$

11. $\log_5 125$

12. $\log_{27} 3$

13. $\ln e^{12}$

14. $\log 1$

15. $\log_{16} 4$

16. $\log_9 3$

17. $\log_{49} 7$

18. $\ln \sqrt{e}$

19. $\log_8 \frac{1}{64}$

20. $\log \sqrt{10}$

21. $\log_8 \frac{1}{2}$

22. $\ln \frac{1}{e^5}$

23. $\ln e^\pi$

24. $\log_{16} \frac{1}{4}$

25. $\log_{36} \frac{1}{6}$

26. $\log_2 \frac{1}{32}$

x	-11	-6	-2	0	1	4	8
$f(x)$	4	8	3	-2	-6	0	-9
$g(x)$	8	5	4	1	-2	-3	-6

Selected values of the continuous functions f and g are shown above. Use the table to find the following, if possible.

27. $f(g(0))$

28. $g(f(-6))$

29. $f^{-1}(0)$

30. $g^{-1}(-2)$

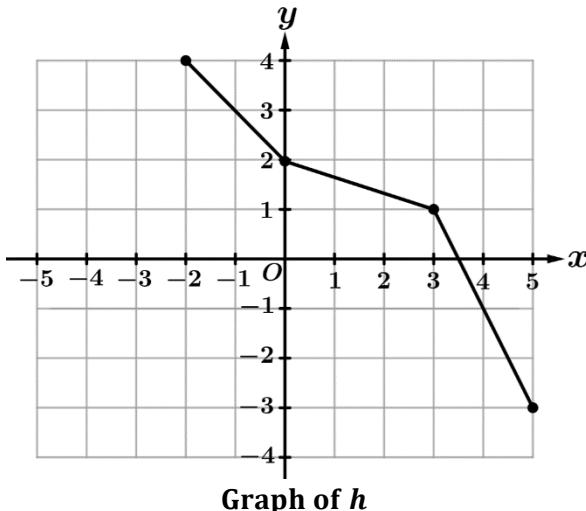
31. $g^{-1}(-6)$

32. $f^{-1}(1)$

33. $f(g^{-1}(5))$

34. $g(f^{-1}(3))$

35. $f^{-1}(g^{-1}(4))$



The graph of the piecewise-linear function h is shown in the figure. Let k be the inverse function of h .

36. $k(3) =$

37. $k(-1) =$

38. $k(0) =$

39. What is the minimum value of k ?

40. What is the domain of k ?