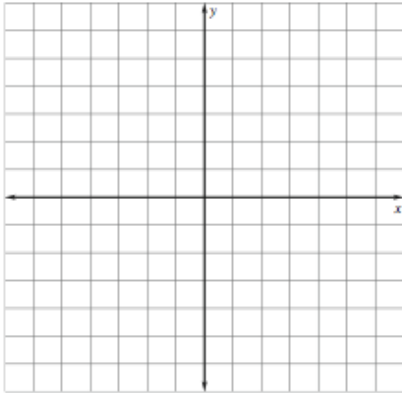


(1-6) Graph each function and draw the asymptote. State the domain and range. (TI-Nspire Allowed)

1. $f(x) = -3 \cdot 4^{x+1} - 2$

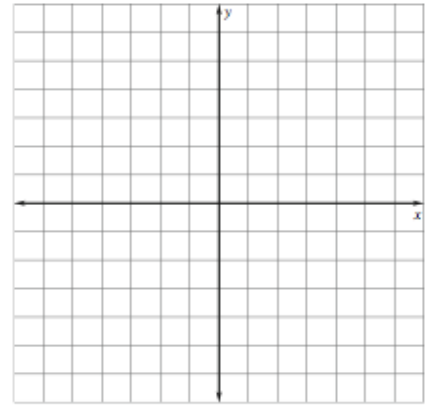
x	y



Domain: _____ Range: _____

2. $y = \left(\frac{1}{3}\right)^x - 4$

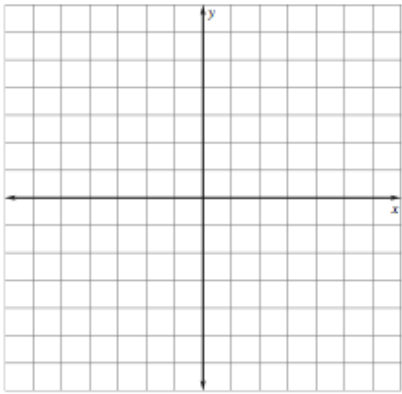
x	y



Domain: _____ Range: _____

3. $f(x) = 2(0.8)^{x-1} + 3$

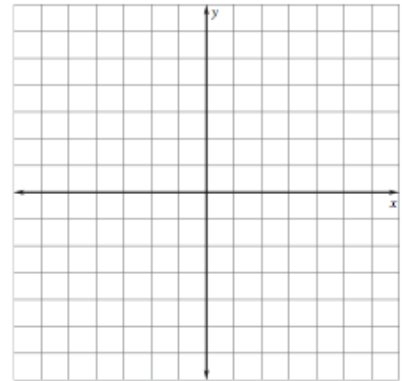
x	y



Domain: _____ Range: _____

4. $y = e^{x-2}$

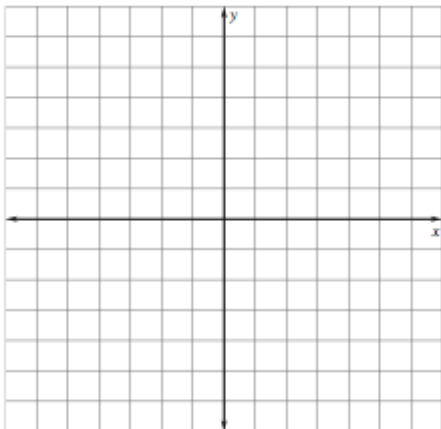
x	y



Domain: _____ Range: _____

5. $y = \log_3 x - 4$

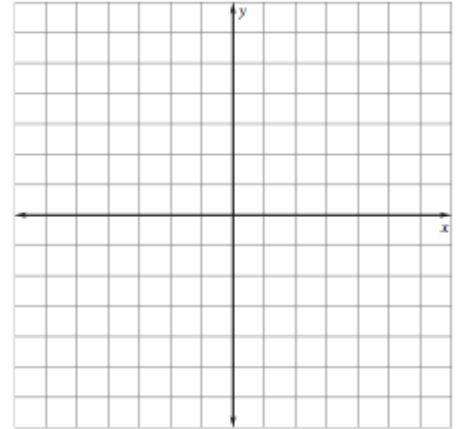
x	y



Domain: _____ Range: _____

6. $f(x) = \ln(x-1) + 3$

x	y



Domain: _____ Range: _____

(7-18) Evaluate the logarithm without using a calculator.

7. $\log_3 243$

8. $\log_7 1$

9. $\log_{1/6} 216$

10. $\log_{125} \frac{1}{5}$

11. $\log_5 25$

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

13. $\log_6 1$

14. $\log 1000$

15. $\ln e$

16. $\log_{1/3} 27$

17. $\log_8 8$

18. $\log_{1/4} 16$

(19-21) Simplify the expression without using a calculator.

19. $e^{-2} \cdot e^6$

20. $(2e^{-2})^{-4}$

21. $\frac{e^{-5} \cdot e^7}{e^{-3}}$

(22-24) Find the inverse of the function.

22. $y = 7^x$

23. $y = \log_6 x$

24. $y = \ln(x + 2) - 1$

(25-28) Expand the expression without using a calculator.

25. $\log_8 3xy$

26. $\ln 10x^3y$

27. $\log \frac{8}{y^4}$

28. $\ln \frac{3y}{x^5}$

(29-31) Condense the expression without using a calculator.

29. $3 \log_7 4 + \log_7 6$

30. $\ln 12 - 2 \ln x$

31. $2 \ln 3 + 5 \ln 2 - \ln 8$

(32-35) Use $\log 4 \approx 0.602$ and $\log 12 \approx 1.079$ to evaluate the logarithm without using a calculator.

32. $\log 48$

33. $\log 64$

34. $\log \frac{1}{3}$

35. $\log \frac{1}{12}$

(36-43) Solve the equation. Check for extraneous solutions. (TI-Nspire Allowed)

36. $7^{2x} = 30$

37. $3 \log(x-4) = 6$

38. $\log_4 x + \log_4(x+6) = 2$

39. $7^{3x+4} = 49^{2x+1}$

40. $4^{2x-5} = 64^{3x}$

41. $\log_5(5x+9) = \log_5 6x$

42. $2\log_3 x - \log_3 2 = \log_3(5x - 12)$

43. $-4e^{2x} + 3 = -7$

44. Write an exponential function $y = ab^x$ whose graph passes through the points (3, 8) and (5, 2).

45. From 1996 to 2001, the number of households that purchased lawn and garden products at home gardening centers increased by about 4.85% per year. In 1996, about 62 million households purchased lawn and garden products. Write a function giving the number of households H (in millions) that purchased lawn and garden products t years after 1996. Determine how many households purchased lawn and garden products in 2000.

46. You deposit \$2500 in an account that pays 3.5% annual interest compounded continuously. What is the balance after 8 years?

47. You deposit \$1500 in an account that pays 7% annual interest compounded daily. Find the balance after 2 years.