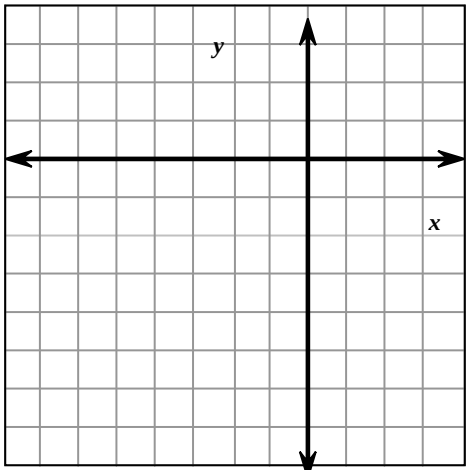
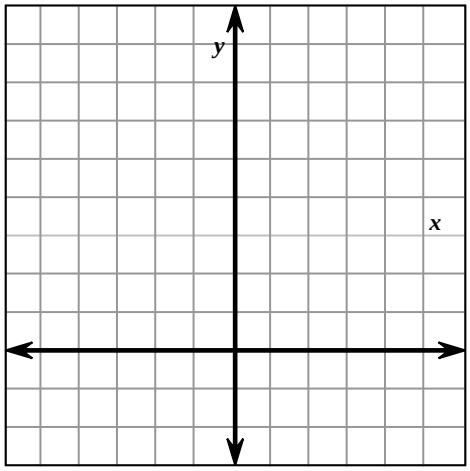
Precalculus Name_____
Review Worksheet

Graph the following functions by showing a series of transformations.

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



2. $f(x) = 2\log_3(x + 2) - 1$



Express as a logarithm.

3. $6^{-3} = \frac{1}{216}$

4. $27^{4/3} = 81$

Express as an exponent.

5. $\log_b x = w$

6. $\log_4 \frac{1}{256} = -4$

Find each logarithm.

7. $\log_3 27$

8. $\log_9 81$

9. $\log_{\frac{1}{3}} 81$

10. $\log_{1/2} \frac{1}{16}$

Solve for x.

11. $\log_x 16 = 4$

12. $\log_8 4 = x$

13. $\log_8 x = -\frac{4}{3}$

14. $\log_{\sqrt{5}} x = 4$

15. $\log_{25} 125 = x$

16. $\log_x 27 = 3/4$

17. $\log_2 (3x - 4) = 3$

18. ln x = 2

Solve each equation.

19. $\log_8 (3x + 7) = \log_8 (7x + 4)$

20. $\log_4 (2x - 1) = \log_4 16$

21. $\log_{10} \sqrt{10} = x$

22. $\log_7 (8x + 20) = \log_7 (x + 6)$

23. $\log_{12} (x - 9) = \log_{12} (3x - 13)$

24. $\log_5 (x^2 - 30) = \log_5 6$

Write as a single logarithm.

25. $\log_2 a + \log_2 b + \log_2 c$

26. $3\log_b 2a$

27. $2\log_5 x - 3\log_5 y$

28. $(2\log_x 3 + \log_x 6) - \log_x 2y$

Write in expanded form.

29. $\log_5 (ab)^3$

30. $\log_6 \dfrac{\sqrt{a}}{b}$

Solve for x.

31. $\log_5 x = 2\log_5 10$

32. $\log x = \log 10 - \log 5$

33. $\log x = \dfrac{1}{2}\log 81 - \dfrac{1}{3}\log 27$

34. $2\log_5 x = \log_5 12 + \log_5 75$

35. $\log_7 x = 4\log_7 2 + (\log_7 3 - \log_7 6)$

36. $\log 3x = \log 12 + 2(\log 5 - \log 2)$

37. $\log_3 x + \log_3 (x-8) = 2$

38. $\log_2 (x+3) + \log_2 (x-3) = 4$

Simplify.

39. $\log_2 (\log_2 (\log_2 16))$

40. $\log_3 (\log_3 (\log_3 27))$

41. $\log_{36} 6 \cdot \log_6 36$

42. $10^{\log_{10} 12 - \log_{10} 2}$

43. $8^{3\log_8 3 - \log_8 5}$

44. $e^{\ln 4x} = \ln 9.4$

45. $\ln e^{1.32x} = 5.8$

46. $x = \log_8 84.3$

47. $2500 = 4e^{0.58x}$

48. $\ln x = -6.5$

49. $\frac{1}{3^x} = 12$

50. If $750 is invested at 8% annual interest that is compounded monthly when will the investment be worth $1600?

51. John's new house in Apex is valued at $105,000. The area he lives in has had a steady rate of appreciation for homes of 12% per year. At this steady rate, when will his house be worth ½ million dollars?

52. If $50 is invested at 8% annual interest that is compounded continuously when will the investment be worth $200?

53. A certain bacteria can grow from 40 to 185 in 3.5 hours. Find the constant k for the bacteria.

54. A piece of office equipment worth $8500 depreciates at 9% per year for the first ten years. At this rate when will the piece of equipment be worth $5000?

55. A radioactive element has a half-life of 10 hours. If you have 300 g of the element initially, how much remains after 25 hours?