Algebra 2
Chapter 4 REVIEW

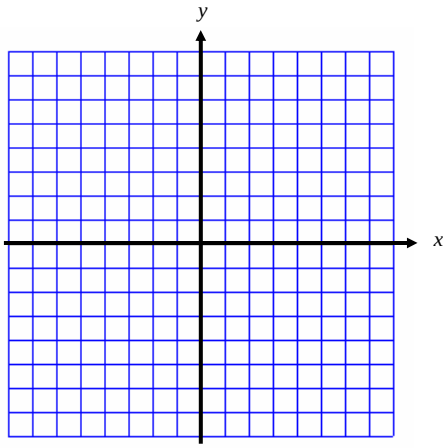
Name: _____

WITHOUT A CALCULATOR

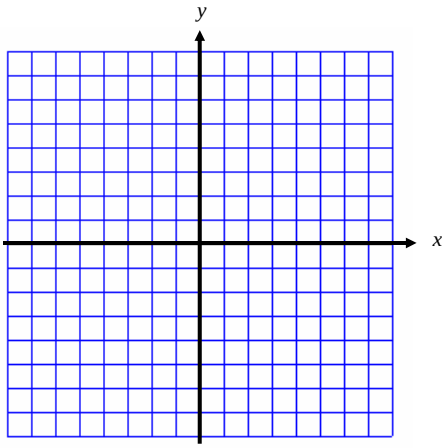
For questions 1 – 4, do the following:

a) Graph the function
b) Graph the inverse
c) Find an equation for the inverse

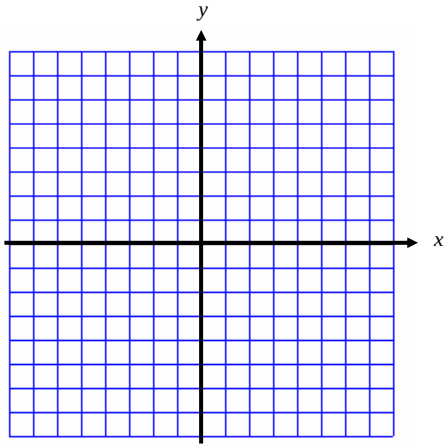
1. $f(x) = -4x$



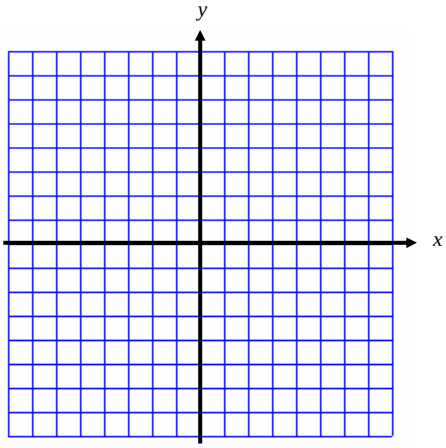
2. $y = \frac{5}{4}x - 7$



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



4. $y = 3 \cdot 2^x$



For questions 5 – 7, write each equation in logarithmic form.

5. $5^3 = 125$

6. $49^{1/2} = 7$

7. $\left(\frac{2}{3}\right)^2 = \frac{4}{9}$

For questions 8 – 10, write each equation in exponential form.

8. $\log_{1/2} 8 = -3$

9. $\log_{64} 2 = \frac{1}{6}$

10. $\log_{0.36} .6 = \frac{1}{2}$

For questions 11 – 18, evaluate each logarithm.

11. $\log_2 128$

12. $\log_{1/3} 81$

13. $\ln e^3$

14. $\log\sqrt{10}$

15. $\log_3(3\times 9)$

16. $\log\dfrac{1}{100}$

17. $\ln\dfrac{1}{e^3}$

18. $\log_2 4^3$

For questions 19 – 24, write each expression in terms of $\log_5 x$ and $\log_5 y$. [Expand] Simplify when possible.

19. $\log_5 xy$

20. $\log_5\dfrac{x}{y}$

21. $\log_5\dfrac{x^{2/3}}{125y}$

22. $\log_5(xy)^7$

23. $\log_5 y\sqrt{x}$

24. $\log_5 25x^3y^2$

For questions 25 – 30, write as a logarithm of a single number or expression. [Condense] Simplify when possible.

25. $\log_2 x-\log_2 y$

26. $2\log_b 3+\frac{1}{2}\log_b 25$

27. $\frac{2}{3}\ln 8-3\ln 2$

28. $3(\ln 3-\ln x)+(\ln x-\ln 9)$

29. $\ln\dfrac{1}{e^3}$

30. $\frac{1}{4}\log_5 81-(2\log_5 6-\frac{1}{2}\log_5 4)$

With Calculator

For questions 31 – 33, find each logarithm with your calculator. Round each answer to the nearest thousandth.

31. $\log 3.8$

32. $\ln 6$

33. $\ln 7.9$

For questions 34 – 39, solve each equation. Round each answer to the nearest thousandth.

34. $2e^{5x}=12$

35. $e^{0.7x}=15$

36. $6(2.5)^x=27$

37. $5e^{2x}-7=e^{2x}$

38. $10^{x+1}=73$

39. $12-3(10^x)=1$

For questions 40 – 45, solve each equation. Check for extraneous solutions.

40. $\ln(4x+1) = \ln(2x+5)$

41. $4\log_3 x = 28$

42. $2\ln(-x)+7 = 14$

43. $\log(x) - \log(x-2) = 1$

44. $1-2\ln x = -4$

45. $\log_2(w-9) - \log_2(w-2) = 3$

For questions 46-48, evaluate each logarithm. Round each answer to the nearest hundredth.

46. $\log_3 8$

47. $\log_{1/4} 3$

48. $\log_5 28$