Secondary Math 3
Review Chapter 6

Name: _____
Period: _____

Write each equation in logarithmic form:

1- $49^{\frac{1}{2}} = 7$

2- $5^{-2} = \frac{1}{25}$

Write each equation in exponential form:

3- $log_2 32 = 5$

4- $log_2 \frac{1}{16} = -4$

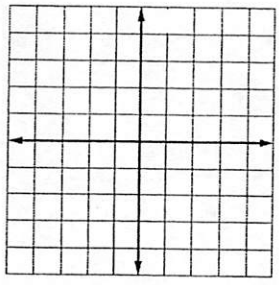
Evaluate each expression:

5- $log_2 64$

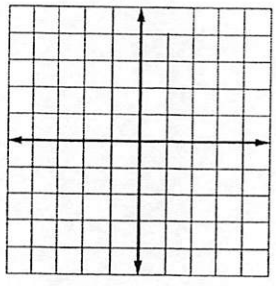
6- $log_2 \frac{1}{8}$

Graph each function then state the domain and range:

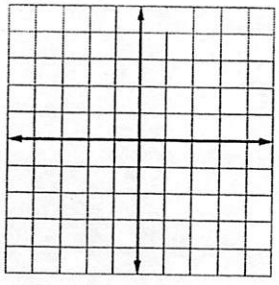
7- $log_3(x-1) - 3$



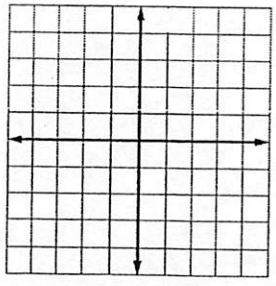
8- $log_{\frac{1}{3}}(x-2)$



9- $-log_4 x + 2$



10- $2log_{\frac{1}{2}}(x+3)$



Solve each equation:

11- $log_4 x = \frac{3}{2}$

12- $log_3 x = -2$

13- $log_{\frac{1}{2}} x = 3$

Solve each inequality:

14- $log_{27} x < \frac{2}{3}$

15- $log_4 x > 3$

16- $log_5 x < -3$

Solve each equation:

17- $log_3(3x + 4) = log_3(x + 9)$

18- $log_5(p^2 - 2) = log_5(p)$

19- $log_9(3x - 1) = log_9(4x)$

Solve each equation:

20. $log_5 7 - \frac{1}{2} log_5 4 = log_5 x$

21. $2log_2 x - log_2(x + 3) = 2$

22. $log_{10} n + log_{10}(n + 21) = 2$

Solve each equation (round each answer to the nearest hundredth):

23. $3^x = 15$

24. $6^{x^2} = 28$

25. $12^{n-1} = 72$

Solve each inequality (round each answer to the nearest hundredth):

26. $5^x \geq 42$

27. $5^{x+2} < 3$

Express each logarithm in **terms of a common logarithm**.
Then approximate to the nearest hundredth.

28. $2log_5 7$

29. $log_8 0.5$

30. $log_{\frac{2}{3}} 64$

Write an equivalent exponential or logarithmic function:

31. $e^x = 30$

32. $ln18 = x$

33. $lnx = 42$

34. $2ln9 = x$

Write as a single logarithm:

35. $3\ ln2 + 2\ ln5$

36. $5\ ln3\ - 2\ ln9$

Solve each equation:

37. $4e^x - 11 = 17$

38. $2e^{-x} + 1 = 15$

39. $lnx + 2 = 6$

40. $lnx - \ln 3 = 8$

Solve each inequality:

41. $5 + e^{-x} > 14$

42. $ln(x-2)^3 > 15$

43. A particular compound decays according to the equation $y = ae^{-0.0974t}$ where t is in days. Find the half-life of the compound.

44. Lydia bought a car for $20,000. It is expected to depreciate at a continuous rate. What will be the value of the car in 2 years? Use $k = -0.105$ *and equation* $y = ae^{kt}$

45. The Richardson family bought a house 12 years ago for $95,000. The house is now worth $167,000. Assuming a steady growth, what was the yearly rate of appreciation (k-value)?