REVIEW 5.4-5.6 for TEST 5B NAME:\_\_\_\_\_

- 1. If  $log_b 3 = .442$ , use the properties of logarithms to find a)  $log_b 9$  b)  $log_b \frac{1}{27}$
- 2. Use the properties of logarithms to a) Expand:  $\log 15x^2y^5$  b) Condense:  $4 \log x - (2 \log y + 3 \log z)$

Solve the following equations. Check your answers. Round answers to three decimal places if necessary.

3.  $16^{2x+1} = 8^{x+1}$ 4.  $4 + 2(7^{x+3}) = 400$ 5. Ln (x-3) = ln (2x-4)

6. 
$$\log_2(2x + 6) = 3$$
  
7.  $\log_4 x + \log_4(x - 6) = 2$ 

8. Write the exponential function,  $y = ab^{x}$  whose graph passes through (2,4) and (5, 108)

9. The wind speed s (in miles per hour) near the center of a tornado can be modeled by s= 20 log d +15, where d is the distance (in miles) that the tornado travels.

a) A tornado travels 20 miles. Estimate the wind speed near the center of the tornado. Round off to the near Thousandth.

b) The wind speed near the center of a tornado was 120 miles per hour. Find the distance that the tornado traveled.

10. 40 grams of Radium is stored in a container. The amount R (in grams) of radium present after t years can be modeled by R= 40  $e^{-.025t}$ . After how many years will there be only 25 grams present?

11. Determine the type of function represented by the table. Explain your reasoning.

x	-3	-1	1	3	5	7
у	61	5	5	13	-19	-139