Name_____

ALGEBRA II JOURNAL
Exponential & Logarithmic Functions

1. An exponential function has a constant _____ and a variable _____.
2. An example of an equation which represents exponential growth is _____ while exponential decay can be represented by equations in the form _____ and _____.
3. (a) e is called the _____ number because _____.
. (b) *e* was discovered by _____.
   (c) The value of *e* to 6 decimal places is _____.
4. The relationship between exponential and logarithmic functions is that _____ _____.
5. Logarithms represent _____.
6. Provide the following information for the graphs of each of the following functions.

	$y = 8^x$	$y = \log_8 x$
(a) Location of the asymptote	_____	_____
(b) Coordinate that appears in every exp/log function	_____	_____
(c) Change each equation above to make it shift right and down	_____	_____
(d) Change each equation above to make it reflect over the *x*-axis.	_____	_____
(e) Change each equation above to make it reflect over the *y*-axis.	_____	_____

7. The two special types of logarithms are _____ logarithms which have base _____ and _____ logarithms which have base _____.
8. The steps for solving an equation containing one or more logs are:
   1) _____
   2) _____
9. The purpose of logarithms in mathematics and the real world is to solve for _____.
10. To solve a problem like $25^{x+3} = 125^{2x-1}$ you would _____ while you would solve a problem like $11^x = 219$ by _____
11. (a) After setting up the equation for a real world application problem in which you need to solve for the exponent, the first thing you must do to begin solving the problem is _____ _____.
    (b) The second step is to move _____ using: _____ logs (if the base is a constant) OR _____ logs (if the problem has base *e*).

12. List the following rules, facts, or formulas.
    a) Three properties of logarithms

    b) List four <u>specific</u> examples of how exponential and/or logarithmic functions may be used in the real world. (Example: "Determine the number of . . ."

        1.

        2.

        3.

        4.

    c) Graph $y = 2^x$ and $y = \log_2 x$ on the same coordinate axis using 2 different colors. Show the T-table of values used to create each graph using the same colors.

    d) Attach the formula sheet for the real-world application problems.