Name_____

PRECALC JOURNAL
Exponential & Logarithmic Functions

1. In an exponential function, the base is a _____ with _____ and the exponent is a(n) _____.
2. When solving an exponential problem on your calculator:
   (a) If you know *x*, two ways you can find *y* are by _____ OR by _____ .
   (b) If you know *y*, you can find *x* by _____
3. (a) The number *e* is generated from the formula _____ and was discovered _ by _____.
   (b) The value of *e* to the nearest thousandth is _____ .
   (c) The base of a natural logarithm is _____ while the base of a common logarithm is _____..
4. (a) A logarithmic function is the _____ of an exponential function.
   (b) In interval notation, the domain of an exponential function is _____ while the domain of a logarithmic function is _____.
   (c) The graph of an exponential function always passes through the coordinate _____ and has a _____ asymptote, while the graph of a logarithmic function always includes the coordinate _____ and has a _____ asymptote.
5. (a) Logarithms were originally developed by _____ in order to _____ _____ while today the primary purpose of a logarithm in mathematics is to _____ .
   (b) To solve an equation with multiple logarithms, you must first use the _____ of _____ to reduce each side to one term and then _____ . to remove the logarithms.
   (c) The expression "_____" is used to describe the method for solving equations such as $6^{3x-1} = 89$ or $7^{x-4} = 2^{5-2x}$.
6. List three examples of real world problems that require the use of exponential or logarithmic functions. (Example: "population" is not sufficient; "population growth of a city" is acceptable.)
   1. _____
   2. _____
   3. _____
7. (a) When doing curve fitting, the term for *r* is _____, and it describes _____ .
   (b) r^2 is called the _____ and it describes _____ _____ .

(c) The three conditions to consider when choosing the best regression function to model a set of data are:

1. _____
2. _____
3. _____

8. (a) The constant value in the numerator of a logistic function is called the _____ .

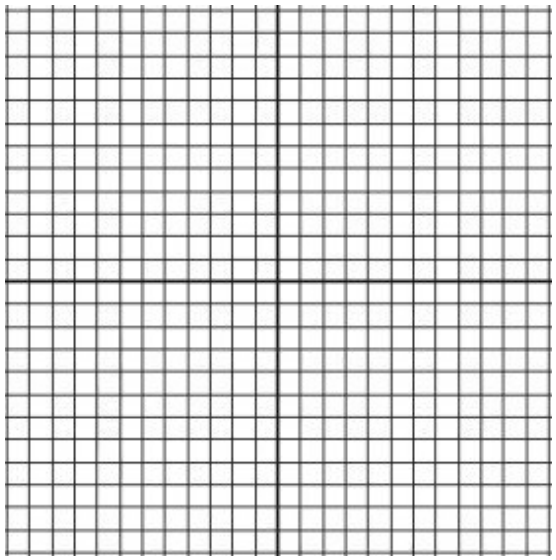
   (b) On the graph of a logistic function, this value indicates _____

   _____ .

9. Important Rules, Formulas, Etc.

   a) 3 properties of logarithms

   b) Draw and label graphs of $y = e^x$ and $y = \ln x$. Clearly show all asymptotes and a T-Table of 3 sets of coordinates used to graph each function.



   c) Attach the formula sheet for exponential applications.

   d) Attach the sheet showing all types of regression, their equations, and graphs.