*Def* An ***exponential function*** *involves a constant raised to a power, where . D:\_\_\_\_ R: \_\_\_\_*

*Ex:*

*Ex: Graph on the same graph.*

*Recall the properties of exponents:*

 *1&4.*

*Defn* The ***logarithm function with base a***, , is the inverse of the base exponential function .

Recall What are the bases of the common and natural log functions?

*Natural log* D:\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_

*Common log* D:\_\_\_\_\_\_\_\_ R: \_\_\_\_\_\_\_\_

This implies and . Also, and in particular, .

*Properties of Logarithms*

For any numbers and , the natural logarithm satisfies the following rules:

1. *Product Rule*
2. *Quotient Rule*
3. *Reciprocal Rule (special case, when b=1)*
4. *Power Rule*

*Change of Base Formula*

Ex 5 Find simpler expressions for the quantities.

E x 6 (1.6.52) Show that the following functions are inverses.

Ex: (1.6.91) solve for x.

Ex: Solve for in terms of .