**Rewriting Exponential & Log Functions**

* A logarithmic function is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of an exponential function
* So, the logarithm of a number is the exponent that a base must be raised to give you that number

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* + If your logarithm has a base of 10, or no base, type the equation into the calculator exactly as it is written

***Evaluate the following base 10 logs. Round to the nearest hundredth:***

1. \_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_

***Change of Base***

* When a logarithm has a base other than 10, use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rule

***Evaluate the following logs using your change of base rule. Round your answer to the nearest thousandth.***

1. =\_\_\_\_\_\_\_\_\_\_
2. =\_\_\_\_\_\_\_\_\_\_
   * We can solve equations using the calculator if they do not have a base of 10.

Step 1: Press MATH

Step 2: Scroll until you see🡪 A:logBASE( 🡪 press ENTER

Step 3: Type the base into the small box and the answer into the large box

1. \_\_\_\_\_\_
2. \_\_\_\_\_\_

***Rewriting Exponential Equations as Logarithms and Logarithms as Exponential Equations***

* When solving for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in exponential equations, you must rewrite your equation as a logarithm
  + Because of this, it is important to know how to switch between exponential and logarithmic forms

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Rewrite each logarithm in exponential form:***



3) 3

***Rewrite each exponential equation in logarithmic form:***

1) 2) 3)

***Solve for the variable in the Exponent Equations below. Round to the nearest Thousandth***

1. 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 =x, x = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 =k , k = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Solving Multi-Step Exponential Equations using Logarithms:***

1. What is the value of x in
   1. Rewrite as a logarithm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. x = \_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the value of x in
   1. Rewrite as a logarithm: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. x = \_\_\_\_\_\_\_\_\_\_\_\_\_

* Before rewriting an exponential equation as a logarithm, the exponential function must be alone (no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* The equation should be in the form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If the equation has coefficients or constants, move them to the other side of the equation before rewriting the exponential function as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the value of x in
2. What is the value of x in
3. What is the value of x in
4. What is the value of x in