# Algebra 2 8.3 Logarithmic Functions Name:

**Definition of a Logarithm**

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Writing an expression in logarithmic form

 Ex: Write in logarithmic form.

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**Evaluating Logarithms**

 Ex: Evaluate:

 Ex: Evaluate:

 Ex: Evaluate:

**Common Logarithms – log with base 10**

 can be written

Application: *pH* (measures acidity)

 is the hydrogen ion concentration

The *pH* of an apple is about 2.3 and the *pH* of a banana is about 5.2. Find the concentration of hydrogen ions in each. Which is more acidic?

 Apple Bannana

**Graphing a Logarithmic Function**

 The graph of

 is the inverse of the graph of

Graph:

|  |  |
| --- | --- |
| *x* |  |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *x* |  |
|  |  |
|  |  |

The graph of has a vertical asymptote at

Compare the graphs of and on your calculator.

Examples:

Graph: Graph:

**Translating Logarithmic graphs**

 Graph:

 (up 2)

 (right 3)

Examples:

Graph: Graph: