# 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.

Ex: Write in logarithmic form.

**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: