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| March/April 2016  Log and Exponential Unit | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sun. | Mon. | Tue. | Wed. | | Thu. | Fri. | | | Sat. |
| **7** | **21** | **22** | **23** | **24** | **25** | | **26** |
|  | **NO SCHOOL – Professional Day** | What is an exponential function? Logarithmic?  Evaluating Both Functions  HWK #1: Evaluating Exponential and Logarithmic Functions  Logarithm Weekly | Review Evaluating  Solving Logarithmic and Exponential Functions  HWK #2: Solving Logarithms | | **Quiz: Evaluating Exponential and Logarithmic Functions**  Solving Log and Exponential Functions | |  |
| **27** | **28** | **29** | **30** | **31** | **1** | | **2** |
|  | **Quiz Solving Logarithms**  Graphing Exponential | Graphing Exponential | Graphing Logarithmic  HWK #4: Graphing Exponential and Logarithm | | Review graphing  **Quiz: Graphing Log and Exponential Functions** | |  |
| **3** | **4** | **5** | **6** | **7** | **8** | | **9** |
|  | **ALL HOMEWORK IS DUE!**  Review and Quiz Retakes | Logarithm Weekly Due  Review | **Log and Exponential Exam** | |  | |  |

**Reminders:**

**Weekly’s are due two weeks after they are assigned.**

**Homework is due the first review day or it is considered late**

**Algebra 3/Trig: Dieckmann Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Exponential/Logarithmic Functions Notes**

**Exponential and Logarithmic Functions:**

Exponential Function

|  |
| --- |
| Objectives: |
| * Differentiate exponential functions from other types of functions * Solve exponential equations where common bases can be created |

*Zombie Activity…*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Night | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| # of zombies |  |  |  |  |  |  |  |

What equation models this function? \_\_\_\_\_\_\_

Sketch a graph:

**Exponential Parent Function:**

**Base “e”:**

Logarithmic Functions

Look back at the two problems we were unable to solve on the previous page. We can’t always be guaranteed to have equations that can be solved by finding common bases; therefore we need a function to offset the exponential (in the same way that addition/subtraction or square/square root work together). This inverse function is called the logarithmic function.

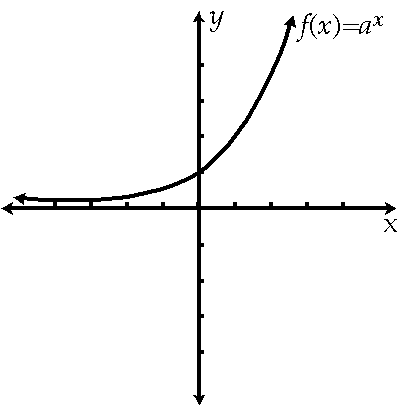
|  |
| --- |
| Objective |
| * Evaluate logarithmic expressions (by converting to an exponential expression if necessary) * Compare and contrast exponential and logarithmic functions |

First look at the graph below for; now graph.

**Logarithmic Parent Function:**

**Common Logarithm:**

**Natural Logarithm:**

******

*Convert each expression.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Exponential |  |  |  |  |  |
| Logarithmic |  |  |  |  |  |

*Evaluate the following exponential functions. If it’s not able to be evaluated write “NP”.*

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | 2. | 3. | 4. |
| 5. | 6. | 7. | 8. |

*Evaluate each log expression.*

|  |  |  |
| --- | --- | --- |
| 3. | 4. | 5. |
| 6. | 7. | 8. |

**Solving Logarithm and Exponential Functions**

Solve each problem, starting with the one that seems easiest and working your way towards the more difficult problems.

|  |  |
| --- | --- |
| 1. | Answer: |
| 2. | Answer: |
| 3. | Answer: |
| 4. | Answer: |
| 5. | Answer: |
| 6. | Answer: |
| 7. | Answer: |
| 8. | Answer: |
| 9. | Answer: |
| \*10. | Answer: |

**Graphing Exponential Functions**

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| --- | --- |
| Vocabulary: | Objectives: |
| 1. Exponential function:  2. Base:  3. e: | * Differentiate exponential functions from other types of functions * Graph exponential functions * Solve exponential equations where common bases can be created |

Graph and state the transformations, HA, domain and range of the following functions.

|  |  |
| --- | --- |
| 4.  Grid 3.JPG  Transformations:  x-int: y-int:  Asymptote:  Domain: Range:  Growth or Decay (circle one) | 5.  Grid 3.JPG  Transformations:  x-int: y-int:  Asymptote:  Domain: Range:  Growth or Decay (circle one) |

**Graphing Logarithmic Functions**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Domain |  |  |
| Range |  |  |
| Intercepts |  |  |
| Asymptote |  |  |

Graph each log function. Be sure to consider the domain.

|  |  |
| --- | --- |
| Grid 3.JPG1.  x-int: y-int:  Asymptote:  Domain: Range:  Growth or Decay (circle one) | 2.  Grid 3.JPG  x-int: y-int:  Asymptote:  Domain: Range:  Growth or Decay (circle one) |