**Algebra II Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| **Unit: 5** | **Homework**: 5 |
| **Standard**: **Build new functions from existing functions**  **MGSE9-12.F.BF.5 (+)** Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents. | |
| **Essential Questions:** What is the inverse of an exponential function? | |
| **Key Words**: logarithm, common logarithm, logarithmic function | |
| **1. Write each exponential expression as a logarithm or logarithm as an exponential expression** | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. 24 = 16 | | b. 112 = 1 | | c. 5-2 = 1/25 | | d. 15 2 = 225 | |
| e. 7 3 = 343 | | f. *a b* = *c* | | g. 3-1 = 1/3 | | h. 203 = 8000 | |
| i. log6 216 = 3 | | j. log4 1024 = 5 | | k. log9 729 = 3 | | l. log3 1/9 = -2 | |
| m. log 1000 = 3 | | n. log*p* *q* = *r* | | o. log2 64 = 6 | | p. log8 512 = 3 | |
| 2. Evaluate each expression using mental math. | | | | | | | |
| a. log6 65 | b. log2 (1/16) | | c. log11 11 | | d. log2 32 | | e. log8 512 |
| 3. Solve each logarithmic equation for x. | | | | | | | |
| a. logx 49 = 2 | | b. logx 16 = -4 | | c. log6 216 = x | | d. log10  = x | |
| 4. Solve each of the following for x using common logarithms. | | | | | | | |
| a. 10x = 21 | | b. 4 (10x) = 5320 | | c. 10x = .1765 | | d. -4 (10x) + 250 = - 6500 | |