**CCGPS Advanced Algebra .Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Unit: 5** | **Homework**: 8 |
| **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:** How do I graph a logarithmic function? | |
| **Key Words**: logarithm, common logarithm, logarithmic function, vertical asymptote, domain, intercepts | |
| ***Unit: 5*** | ***Test****:* ***1 REVIEW*** |
| 1. *p*(*x*) = -1.5(2)*x*  a. Graph  *Domain:\_\_\_\_\_\_\_\_\_\_ Range:\_\_\_\_\_\_\_\_\_\_\_\_*  *x-int:\_\_\_\_\_\_\_\_\_\_\_\_ Y-int:\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *Asymptote\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *Increasing or Decreasing*  *End Behavior* | ***14 by 14 axes*** |

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| 2. In 2000, a city had a population of 12.2 million and was increasing at a rate of 1.65% each year.  a.Write a function for the population of the city.  b. Does the function represent growth or decay?  c.Use a graph to predict the population in 2015. |  |
| 3. Write each exponential expression as a logarithm or an exponential expression  a.  b. log5 125 = 3 | |
| 4. Evaluate each expression using mental math.   1. log8 512 2. log6 65      1. log2 (1/16) | |
| 5. Solve each logarithmic equation for x.  a. logx 27 = -3  b. log4 256 = x | |
| 6. Solve each of the following for x using common logarithms. Show your work!  a. 10x = 43  b. 2 (10x) = 3410 | |
| Coordinate Plain TI7. *f*(*x*) = log2(*x* – 2) – 1  a. graph f(x)  b. domain of g(x)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ c. range of g(x)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  d. asymptote(s) of g(x)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  e. intercept(s) of g(x)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  f. Is the function increasing or decreasing? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| 8. Use the given *x*-values to graph the function. Then graph its inverse.  f (x)  0.1 x; *x*  1, 0, 1, 2 | a207c07_prb_l03ak_001a_A |