

Name \_\_\_\_\_

Date \_\_\_\_\_

Advanced Algebra

Assignment #4 : [www.washburngulliford.weebly.com](http://www.washburngulliford.weebly.com)

**Unit 3- Exponential, Power, and Logarithmic Functions:**

Students should come into this unit with

- a) Knowledge of how to use the rules for calculating with exponents accurately
- b) Knowledge of how to solve simple growth and decay problems
- c) How to write exponential equations from tables and graphs

LT: I can simplify exponents using exponent rules. **Home work: You need to study your exponent rules. These can be found on page 246. ( See the “Blue” and “Green” assignment)**

Re-write the following expressions without using a negative exponent or a decimal point.

1)  $5^{-3}$

2)  $(2 \times 3)^0$

3)  $(5x^2)^3$

4)  $3^{1/4} * 3^{3/4}$

5)  $4^{1/3} * 16^{1/3}$

6)  $20^{1/4} * (4/5)^{3/4}$

7)  $2^{3*2^5}$

8)  $(-3)^{2*} (-3)^1$

9)  $(1/2)^2 * (1/2)^{-2}$

10)  $3 * (2/3)^3 * (3/2)^2$

11)  $3 * (2/3)^3 * (3/2)^2$

12)  $x^4 * x^{-2}$

13)  $3y^2 * y^2$

14)  $(4^3)^2$

15)  $(6^2)^{-2}$

**I can solve exponential equations:**

1)  $28+2^x = 692$

2)  $\frac{3^x}{45} = 95$

3)  $100 + \frac{18^{2x-3}}{4} = 652$

4)  $5^{(3x-2)} = \frac{1}{625}$

5)  $-285 + 3(6^x) = 1962$

6)  $\frac{6^x}{32} = 716$

**LT: I can use exponential equations to model real life situations. Write an equation and use Log function to solve. Please show your work.**

- 1) The car that Jason bought is expected to depreciate 18% each year. Jason paid \$17,500 for his car. How much would his car be worth 3 years after he bought it?
- 2) Sally made a deposit in the bank of \$1,200. She will earn 8% annual interest. She leaves it in the bank making no other withdrawals or deposits. How much will her account be worth in 5 years?
- 3) James deposits \$500 into an account that pays 6.75% annual interest. How long will it take for his money to double?
- 4) Amilia took out a loan for \$12,000. The APR on the loan is 7% compounded monthly. She makes no payments on this loan because they offered her this option. After how long will the balance on the loan be \$14,000? (It's probably a good idea for her to get paying on the loan!)
- 5) Ben received \$500. He decided that he would place it into an account that earns interest. The account he deposited the money into earns 8.5% compounded quarterly. After how long will the account be worth \$4,200?