Name_____

Date_____

Advanced Algebra- **Assignment #6**

Unit 3: Exponential, Logarithmic, and Power Functions

I can solve an exponential equation with the change of base rule

Solve the following exponential equations by using the change of base method.

1) $3^x = 81$

$x = 4$

2) $4^x = 16^2$

$4^x = 4^4$

$x = 4$

3) $4^x = .25$

$4^x = 4^{-1}$

$x = -1$

4) $2^x = 512$

$2^x = 2^9$

$x = 9$

5) $4^x = 256$

$2^{2x} = 2^8$

$2x = 8$

$x = 4$

6) $6^x = (216)^{12}$

$(6^3)^{12}$

$6^x = 6^{36}$

$x = 36$

7) $5^x = 625$

$5^x = 5^4$

$x = 4$

8) $(8^x)^x = (64)^2$

$8^{x^2} = 8^{2(2)}$

$8^{x^2} = 8^4$

$x^2 = 4$

$x = 2$

Assignment #6

9) $7^x = 49$ $x = 2$	10) $3^x = 19683$ $3^x = 3^9$ $x = 9$
11) $8^x = 512$ $2^{3x} = 2^9$ $3x = 9$ $x = 3$	12) $5^x = 125$ $5^x = 5^3$ $x = 3$
13) $4^x = 65536$ $4^x = 4^8$ $x = 8$	14) $2^x = 512$ $2^x = 2^9$ $x = 9$
15) $6^x = 1296$ $6^x = 6^4$ $x = 4$	16) $2^x = 128$ $2^x = 2^7$ $x = 7$
17) $2^x = 16^3$ $2^x = 2^{4(3)}$ $2^x = 2^{12}$ $x = 12$	18) $8^x = 16777216$ $2^{3x} = 4^{12}$ $2^{2(12)}$ $2^{3x} = 2^{24}$ $x = 8$

Assignment #6

19) $10^x = 1000$ $10^x = 10^3$ $x = 3$	20) $3^x = 243$ $3^x = 3^5$ $x = 5$
21) $2^x = 4$ $2^x = 2^2$ $x = 2$	22) $2^x = 8192$ $2^x = 2^{13}$ $x = 13$
23) $4^x = 4096$ $4^x = 4^6$ $x = 6$	