

** Unit #4 Review **

* Logarithmic and Exponential Functions *

Warmup 1. Solve for x .

a) $(1.2)^x = (2.8)^{4x}$

b) $x = \log_{4.9} 35$

c) $10^{2x+1} - 1 = 94$

Sol'n $\log 1.2^x = \log 2.8^{4x}$ "log it"
 $x \log 1.2 = 4x \log 2.8$, power law

Sol'n $x = \frac{\log 35}{\log 4.9}$

Sol'n $10^{2x+1} = 95$

$0.0792x = 4x(0.4472)$

$x \doteq 2.24$

$(2x+1)\log 10 = \log 95$

$0.0792x = 1.7886x$

$2x+1 = \frac{\log 95}{\log 10}$

$0 = 1.7094x$

$2x+1 \doteq 1.9778$

$0 = x$

$x \doteq 0.4889$

Remark: There are periods of time / chunks of curriculum where we can take it "easy" ... like yesterdays "3U ish" lesson on growth and decay stories. But today is not that day. Now we focus and concentrate and avoid getting outworked. During review you want to learn in and develop flexibility.

Ex, True / False? Correct if false.

1) $4^8 \div 4^4 = 1^4$

F. 4^4

2) $\log 100 - \log 10 = \log 90$

F. $\log_{10} 10 = 1$

3) $2^4 \times 2^2 = 4^6$

F. 2^6

4) $\log 4 \times \log 2 = \log 8$

F. $\doteq 0.18$

5) $\log_4 16 \div \log_4 4 = 1$

F. 2

6) $9 \log_3 1 = 2$

F. 0

7) $\log_4 16 - 32 = -2$

F. $2 - 32 = -30$

8) $-\log_5 25 = \frac{1}{2}$

F. -2

9) $\log_{2020} 9 + \log_{2020} 2011 = 1$

F. $\doteq 1.29$

10) $\log_{12} 144^{-1} = (\log_{12} 144)^{-1}$

F. $LS \doteq -2$

11) $\log_{12} [(2)(12)] = 2 \log_{12} 12$

F. $LS \doteq 1.28$

e)

Remarks: You should know and apply skills and knowledge as listed on page 3 below ↴

Work Periods: P157 # 1-5, 9, 10, (11-15) every other letter, 17-29, 31-34, 39, 45
N ↴ Could use Desmos to check #15

Units 4 – Exponential and Logarithmic Functions*I can:*

- apply the exponent laws.
- graph exponential $y = (a)^x$ functions and logarithmic $y = \log_a x$ functions with transformations.
- analyze exponential graphs and logarithm graphs, and state their traits including domain and range.
- understand the relationship between exponents and logarithms.
- manipulate, evaluate, and simplify logarithmic expressions using the properties and laws of logarithms.
- solve exponential equations and logarithmic equations.
- use the change of base identity
- solve real world exponential growth and decay questions.

Units 4 – Exponential and Logarithmic Functions*I can:*

- apply the exponent laws.
- graph exponential $y = (a)^x$ functions and logarithmic $y = \log_a x$ functions with transformations.
- analyze exponential graphs and logarithm graphs, and state their traits including domain and range.
- understand the relationship between exponents and logarithms.
- manipulate, evaluate, and simplify logarithmic expressions using the properties and laws of logarithms.
- solve exponential equations and logarithmic equations.
- use the change of base identity
- solve real world exponential growth and decay questions.

Units 4 – Exponential and Logarithmic Functions*I can:*

- apply the exponent laws.
- graph exponential $y = (a)^x$ functions and logarithmic $y = \log_a x$ functions with transformations.
- analyze exponential graphs and logarithm graphs, and state their traits including domain and range.
- understand the relationship between exponents and logarithms.
- manipulate, evaluate, and simplify logarithmic expressions using the properties and laws of logarithms.
- solve exponential equations and logarithmic equations.
- use the change of base identity
- solve real world exponential growth and decay questions.