UNIT 5: EXPONENTIAL FUNCTIONS AND LOGARITHMIC FUNCTIONS

DAY 1: LAWS OF LOGARITHMS

1. PRODUCT LAW: The log of a product is equal to the sun of the log of factors.

Rewrite each:

a) $log_5(17.5)(65.7)$

b) $log_3 62 + log_3 92$

c) $log_4 5 + log_4 6$

2. QUOTIENT LAW: The log of a quotient is equal to the log of the numerator, munis the log of the denominator.

Rewrite each:

a) $log_7 \frac{45}{27}$

b) $log_7 \frac{17.2}{3}$

c) $log_6 2 + log_6 3 - log_6 4$

HW: pg.. 343 #1, 2, 4, 6 - 11, 13, 15, 17, 18

Evaluate:

a) $log_6 72 - log_6 2$

b) $log_3 54 + log_3 2 - log_3 4$

3. POWER LAW: The log of a power is equal to the exponent multiplied by the log number.

Rewrite each:

a) $log_3 10^7$

b) $2log_4 5$

Evaluate:

a) $log_{10} \sqrt[3]{100}$

b) $log_7 \sqrt[4]{49}$

c) $log_5 (25\sqrt[3]{5})$

HW: pg.. 343 #1, 2, 4, 6 - 11, 13, 15, 17, 18

4. COMMON LOGS: Have a base of 10 understood, used on calculators.

$log 100$

If the base is NOT 10, then in order to evaluate, use:

$$log_a b = \frac{log_{10} b}{log_{10} a}$$

Evaluate:

a) $log_3 2$

b) $log_2 0.7$

HW: pg.. 343 #1, 2, 4, 6 - 11, 13, 15, 17, 18

Given the following values, evaluate each.

$\log_{10}2$ = 0.3010 $\log_{10}3$ = 0.4771 $\log_{10}5$ = 0.6990

a) $\log_{10}6$ b) $\log_{10}15$ c) $\log_{10}4$ d) $\log_{10}8$

Solve:

a) $3^x=20$, to 5 decimal places and check.

b) $\log_5 9$, to 5 decimal places and check.

HW: pg.. 343 #1, 2, 4, 6 - 11, 13, 15, 17, 18