Topic: 8.5 Properties of Logarithms (part 1)

Summary:

Complete the table below.

$\log_b m$	log _b n	log _b mn
log 10 =	$\log 100 = 2$	log(10 * 100) = 3
$\log 0.1 = -$	$\log 0.01 = -2$	$\log(0.1*0.01) = -3$
$\log_2 4 = 2 \text{*since}_{2^2 = 4}$	$\log_2 8 = 3$ * Since $2^3 = 8$	$\log_2(4*8) = \frac{\text{*since}}{25=32}$

Do you notice a pattern when you compare the first two columns to the third column?

The first column plus the Second Column equals the third Column.

Properties of Logarightms

Product Property:

$$\log_b mn = \log_b m + \log_b n$$

Quotient Property:

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Power Property:

$$\log_b m^n = \bigcap \log_b \bigcap$$

Use log ₉ 5	$\approx 0.732 \text{ and}$	$\log_9 11 \approx$	1.091 to	approximate	the
following.					

1. $\log_9 \frac{5}{11}$

log 57-log 53

-0.359

 $2. \log_9 55$

0.732-1.091 loga5+loga11

0.732+1.091

1.823

3. log₂ 25

6. $\log_{10} 27$

Jogg (5.5) tog9 5 + log 9 5

0.732+0.732

1.464

Use $\log_5 3 \approx 0.683$ and $\log_5 7 \approx 1.209$ to approximate the following.

4. $\log_5 \frac{7}{3}$

5. $\log_{5} 9$

0.683+0.683

X095 (3.3.3) logs 3+logs 3 logs (3) +logs 3+

1.209-0.683 0.526

1.366)

0.683 +0.683+

Use $\log 2 \approx 0.301$ and $\log 7 \approx 0.845$ to approximate the following.

7. log 4

109 (2:2)

0.602

8. log 14

209 (2.7)

log 2+ log 2 log 2+ log 7

0.301+0.301 0.301+0.845

01.146

9. $\log \frac{7}{2}$

log7-log 2 0.845-0.301

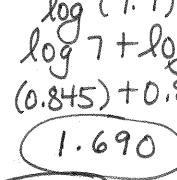
0.544

10. $\log \frac{2}{7}$

1.544

11. $\log 7^{-3}$





12. log 49