

ALG III 3/12/18  
Log Properties

Name: \_\_\_\_\_

Warm Up: Solve.

a.  $\log_3 x = 2$

b.  $2 \cdot 4^x = 32$

c.  $3^x = 8$

e.  $3 \cdot 2^x = 48$

f.  $2\log_3(x+1) = 4$

EX #1: Solve.

a.  $\log_2 4 + \log_2 8 = \log_2 x$

b.  $\log_3 27 - \log_3 9 = \log_3 x$

Sometimes there is a benefit to using log properties to expand or condense an expression.

Product Property:  $\log_a(m \cdot n) = \log_a m + \log_a n$

Quotient Property:  $\log_a \frac{m}{n} = \log_a m - \log_a n$

Power Property:  $\log_a m^n = n \log_a m$

Ex #2: Solve.

a.  $\log_3 x + \log_3 5 = \log_3 25$

b.  $\log_5(x+1) + \log_5 3 = \log_5(2x-7)$

EX #3: Given  $\log_5 7 \approx 1.21$  and  $\log_5 3 \approx 0.68$  find:

a.  $\log_5 21$

b.  $\log_5\left(\frac{3}{7}\right)$

c.  $\log_5 9$

d.  $\log_5 35$

e.  $\log_5 175$

f.  $\log_5\left(\frac{5}{3}\right)$

Assignment: pg. 561 #21, 24, 27, 30, 33, 35, 36, 42, 45, 46, 49, 52; p 577 #35