



5.5: Apply Properties of Logarithms

Properties of Logarithms:

Let b , m and n be positive numbers such that $b \neq 1$.

Product Property



Quotient Property



Power Property

<u>True or False?</u>	<u>T/F</u>	<u>Correction</u>
1. $\log_5(8) - \log_5(6) = \log_5(4/3)$		
2. $\log(3) + \log(8) = \log(11)$		
3. $5\log_4(2) = 10$		
4. $-3\log(2) = (1/8)$		
5. $\log_7(4) + \log_7(3) = \log_7(12)$		
6. $\log_4(20) - \log_4(5) = 1$		
7. $\log_7(10) - \log_3(5) = \log_{21}(2)$		
8. $\log_9(56) - \log_9(7) + \log_9(2) = \log_9(16)$		
9. $\ln(12) + \ln(6) = \ln(18)$		



Example) Condense the logarithmic expression down to one logarithm.

a) $\log(9) + 3\log(2) - \log(3) =$

b) $\log_2(x) + \log_2 y^5 - 6\log_2 x =$



Example) Expand the logarithmic expression

a) $\log(3x^4)$

b) $\log_6\left(\frac{(5x)^3}{y}\right)$



Example) Use $\log_4 3 \approx 0.792$ and $\log_4 7 \approx 1.404$ to evaluate the logarithms below.

a) $\log_4(3/7) \approx$

b) $\log_4 21 \approx$

c) $\log_4 49 \approx$



Classwork/Homework Assignment:

PS 5.5