

#20 ~ Sect. 8.4: Properties of Logarithms

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:  $\log_b M^x = x \log_b M$

Ex. 1: State the property or properties used to rewrite each expression.

a)  $\log 6 = \log 2 + \log 3$

b)  $\log_b \frac{x^2}{y} = 2 \log_b x - \log_b y$

Ex. 2: Write each expression as a single logarithm.

a)  $\log_4 64 - \log_4 16$

b)  $6 \log_5 x + \log_5 y$

Ex. 3: Expand each logarithm.

a)  $\log_7 \frac{t}{u}$

b)  $\log 4p^3$