1/22/13 **Laws of logarithms**

$\log_b(M \cdot N) = \log_b(M) + \log_b(N)$

$\log_b\left(\frac{M}{N}\right) = \log_b(M) - \log_b(N)$

$\log_b(M^K) = K \cdot \log_b M$

Express in terms of $\log_6 M$ and $\log_6(N)$

Ex 1 $\log_6(M^2 N^3)$

$= \log_6(M^2) + \log_6(N^3)$

$= 2\log_6(M) + 3\log_6(N)$

2 $\log_6\left(\sqrt{\frac{M}{N^5}}\right)$

$= \log_6\left(\frac{M^{1/2}}{N^{5/2}}\right)$

$= \log_6(M^{1/2}) - \log_6(N^{5/2})$

$= \frac{1}{2}\log_6(M) - \log_6(N^{5/2})$

If $\log_{10}(9) = .95$ and $\log_{10}(2) = .30$ find the following

Ex 3 $\log_{10}(3)$

$\log_{10}(9^{1/2})$

$\frac{1}{2}\log_{10}(9)$

$\frac{1}{2}(.95) = .475$

4 $\log_{10}(900)$

$\log_{10}(9 \cdot 100)$

$\log_{10}(9) + \log_{10}(100)$

$.95 + 2$

2.95

$\log_{10}(100) = x$

$10^x = 100$

$10^x = 10^2$

$x = 2$