Class Notes and Examples

<u>Exploratory Activity</u>
Let's evaluate some logarithms using our calculators, and try to discover some of the more advanced properties of logarithms.

Evaluate:

$\log_5(25) =$ $\log_5(125) =$ $\log_5(25 \cdot 125) =$

$\log_2\left(\frac{1}{8}\right) =$ $\log_2(4) =$ $\log_2\left(\frac{1}{8} \cdot 4\right) =$

$\log_b(b^5) =$ $\log_b(b^2) =$ $\log_b(b^5 \cdot b^2) =$

In general, $\log_b(x \cdot y) =$ ______________________________

$\log_2(32) =$ $\log_2(4) =$ $\log_2\left(\frac{32}{4}\right) =$

$\log_3(9) =$ $\log_3(81) =$ $\log_3\left(\frac{9}{81}\right) =$

$\log_b(b^5) =$ $\log_b(b^2) =$ $\log_b\left(\frac{b^5}{b^2}\right) =$

In general, $\log_b\left(\frac{x}{y}\right) =$ ______________________________

$\log_2(4^5) =$ $5 \cdot \log_2(4) =$

$\log(100^{-2}) =$ $-2 \cdot \log(100) =$

$\ln(e^7) =$ $7 \cdot \ln(e) =$

In general, $\log_b(x^p) =$ ______________________________