REVIEW

Properties
of
Logarithms

Remember this:

$y = b^x \quad \Leftrightarrow x = \log_b y$

$x = \log_{10} y \Leftrightarrow x = \log y$

$x = \log_e y \Leftrightarrow x = \ln y$

$\log 10^x = x$

$\ln e^x = x$

Try these:

a) *log (1000) =*

b) *ln* (e^5) =

c) *log (1) =*

d) *ln (1) =*

Properties of Logarithms

1) $\log(uv) = \log u + \log v$

2) $\log\left(\frac{u}{v}\right) = \log u - \log v$

3) $\log u^n = n \log u$

Simplify these:

a) $\log (25)+\log(40) =$

b) $\ln 2+\ln 6 =$

c) $\log 450 - \log 9 =$

d) $\ln (10)^6 =$

e) $\ln (e^2 \cdot e^4) =$

f) $\log (.0006) =$

Expand these expressions using the properties of logarithms.

a) $log\ (5x) =$

b) $ln\ (x(x\text{-}1)^2) =$

c) $log\ \sqrt{xy} =$

d) $ln\ (e^{-2}) =$

Condense these expressions using properties of logarithms.

a) $\log (2x+3y) =$

b) $\ln x^5 + \ln(x+1) =$

c) $3\log x - 2\log y =$

d) $3[\ln x - 2 \ln y] =$