REVIEW
Properties of Logarithms

Remember this:

$$y = b^x \Leftrightarrow x = \log_b\ y$$
$$x = \log_{10}\ y \Leftrightarrow x = \log\ y \quad \log\ 10^x = x$$
$$x = \log_e\ y \Leftrightarrow x = \ln\ y \quad \ln\ e^x = x$$

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) $\ln(x(x-1)^2) =$

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