

PRE-AP ALGEBRA 2

1) Express

$$\frac{3}{4} \ln x + \frac{5}{4} \ln y - \frac{7}{4} \ln z =$$

as a single logarithm.

$$\begin{aligned} &= \frac{1}{4} [3 \ln x + 5 \ln y - 7 \ln z] = \\ &= \frac{1}{4} [\ln x^3 + \ln y^5 - \ln z^7] = \\ &= \frac{1}{4} [\ln(x^3 y^5) - \ln z^7] = \\ &= \frac{1}{4} \ln \left(\frac{x^3 y^5}{z^7} \right) = \ln \left(\frac{x^3 y^5}{z^7} \right)^{1/4} = \\ &= \ln \sqrt[4]{\frac{x^3 y^5}{z^7}} \end{aligned}$$

3A.5 CLASSWORK

2) Expand

$$\begin{aligned} &\log \left(\frac{x^8 y^2}{z^{11}} \right) = \\ &= \log(x^8 y^2) - \log z^{11} = \\ &= \log x^8 + \log y^2 - \log z^{11} = \\ &= 8 \log x + 2 \log y - 11 \log z \end{aligned}$$