

PRE-AP ALGEBRA 2

1) Use the Power Rule to rewrite each logarithm.

a)  $\log_7(x^3)$

b)  $\log_4(\sqrt[5]{x^2})$

a)  $\log_7(x^3) = 3\log_7 x$

b)  $\log_4(\sqrt[5]{x^2}) = \log_4(x^{2/5}) = \frac{2}{5}\log_4 x$

2) Use the Change of Base Formula to write each expression as a single logarithm.

a)

$$\frac{\log_4 32}{\log_4 8} = \log_8 32$$

b)

$$\frac{\log_{11} 181}{\log_{11} 13} = \log_{13} 181$$

3A.4 CLASSWORK

3) Calculate  $\log_4 78$  by using

a) common logarithms

b) natural logarithms

a)  $\log_4 78 = \frac{\log 78}{\log 4} = \frac{1.892095}{0.602060} = 3.1427$

b)  $\log_4 78 = \frac{\ln 78}{\ln 4} = \frac{4.356709}{1.386294} = 3.1427$