Logarithms Q2 (24/6/23)

If $k = log_{24}12$, write the following in terms of k:

(a) $log_{24}2$ (b) $log_{24}6$

Solution

(a) $log_{24}2 = log_{24}\left(\frac{24}{12}\right) = log_{24}24 - log_{24}12 = 1 - k$

(b) $log_{24}6 = log_{24}\left(\frac{12}{2}\right) = log_{24}12 - log_{24}2 = k - (1 - k) = 2k - 1$

[or $log_{24}6 = log_{24}\left(\frac{24}{4}\right) = log_{24}24 - log_{24}4 = 1 - log_{24}(2^2)$