

1. Let $\log_3 K = x$, $\log_3 L = y$, and $\log_3 M = z$.

Write down the following in terms of x , y and z .

(a) $\log_3 \left(\frac{K}{LM} \right)$ (2 marks)

(b) $\log_3 \left(\frac{M^2}{K^2} \right)$ (2 marks)

(c) $\log_K L$ (2 marks)

Mark scheme:

(a) $\log_3 K - \log_3 LM$ (A1)

$$\log_3 K - \log_3 L - \log_3 M$$

$$x - y - z \quad (A1)$$

(b) $\log_3 M^2 - \log_3 K^3$ (A1)

$$2 \log_3 M - 3 \log_3 K \quad (A1)$$

$$2z - 3x \quad (A1)$$

(c) $\frac{\log_3 L}{\log_3 K}$ (A1)

$$\frac{y}{x} \quad (A1)$$