

Single Logarithm and Expansion

Sheet 2

Expand each expression :

1) $\log_5 \sqrt[3]{uv^6}$ = _____

2) $6 \log_6 \left(\frac{x^3}{y} \right)$ = _____

3) $9 \log_e \left(\frac{c^5 b^2}{d} \right)$ = _____

4) $\log_8 \left(\frac{f}{g^3 h^4} \right)$ = _____

5) $\log_a \left(\frac{n}{3} \right)^6$ = _____

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Rewrite each expression

6) $\frac{1}{2} (4 \log_2 3 + \dots)$ = _____

7) $(8 \log_5 a + 12 \log_5 b)$ = _____

8) $4 (\log_7 a - \log_7 b)$ = _____

9) $12 \log_2 s - (16 \log_2 u + 12 \log_2 v)$ = _____

10) $(\log_x l + \log_x m) - \log_x n$ = _____

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Expand each expression :

$$1) \log_5 \sqrt[3]{uv^6} = \underline{\frac{1}{3} (\log_5 u + 6 \log_5 v)}$$

$$2) 6 \log_6 \left(\frac{x^3}{y} \right) = \underline{18 \log_6 x - 6 \log_6 y}$$

$$3) 9 \log_e \left(\frac{c^5 b^2}{d} \right) = \underline{45 \log_e c + 18 \log_e b - 9 \log_e d}$$

$$4) \log_8 \left(\frac{f}{g^3 h^4} \right) = \underline{\log_8 f - 3 \log_8 g - 4 \log_8 h}$$

$$5) \log_a \left(\frac{n}{3} \right)^6 = \underline{6 \log_a n - 6 \log_a 3}$$

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Rewrite each expression

$$6) \frac{1}{2} (4 \log_2 3 + \log_2 9) = \underline{\log_2 3}$$

$$7) (8 \log_5 a + 12 \log_5 b) - 4 \log_5 a = \underline{4 \log_5 a + 12 \log_5 b}$$

$$8) 4 (\log_7 a - \log_7 b) = \underline{\log_7 \left(\frac{a}{b} \right)^4}$$

$$9) 12 \log_2 s - (16 \log_2 u + 12 \log_2 v) = \underline{4 \log_2 \left(\frac{s^3}{u^4 v^3} \right)}$$

$$10) (\log_x l + \log_x m) - \log_x n = \underline{\log_x \left(\frac{lm}{n} \right)}$$