

www.freemaths.fr

TLE

Technologique Mathématiques

log : Définition & Propriétés



CORRIGÉ DE L'EXERCICE

CORRECTION

1. Simplifions l'expression A:

$$\begin{aligned}A &= \log(a^2) + \log(b^4) - 2 \log(b) \\ &= 2 \log(a) + 4 \log(b) - 2 \log(b) \\ &= 2 \log(a) + 2 \log(b) \\ &= 2 (\log(a) + \log(b)) \\ &= 2 \log(ab).\end{aligned}$$

Ainsi: $A = 2 \log(ab)$.

2. Simplifions l'expression B:

$$\begin{aligned}B &= \log(a) - \log(a^2 b) + 2 \log(b) \\ &= \log(a) - (\log(a^2) + \log(b)) + 2 \log(b) \\ &= \log(a) - 2 \log(a) - \log(b) + 2 \log(b) \\ &= -\log(a) + \log(b) \\ &= \log(b) - \log(a)\end{aligned}$$

$$= \log\left(\frac{b}{a}\right).$$

Ainsi: $B = \log\left(\frac{b}{a}\right).$

3. Simplifions l'expression C:

$$\begin{aligned} C &= 3 \log(b^2) - 2 \log(a) + 5 \log(ab) \\ &= (3 \times 2) \log(b) - 2 \log(a) + 5(\log(a) + \log(b)) \\ &= 6 \log(b) - 2 \log(a) + 5 \log(a) + 5 \log(b) \\ &= 3 \log(a) + 11 \log(b). \end{aligned}$$

Ainsi: $C = 3 \log(a) + 11 \log(b).$