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TLE

Technologique Mathématiques

log : Définition & Propriétés



CORRIGÉ DE L'EXERCICE

CORRECTION

1. Simplifions l'expression A:

$$\begin{aligned}
 A &= \log(a) + \log(b^2) - \log\left(\frac{a^3}{b^{-2}}\right) \\
 &= \log(a) + 2 \log(b) - (\log(a^3) - \log(b^{-2})) \\
 &= \log(a) + 2 \log(b) - (3 \log(a) + 2 \log(b)) \\
 &= \log(a) + 2 \log(b) - 3 \log(a) - 2 \log(b) \\
 &= -2 \log(a).
 \end{aligned}$$

Ainsi: $A = -2 \log(a)$.

2. Simplifions l'expression B:

$$\begin{aligned}
 B &= \log(a^3) - \log(a^{-5}) + 2 \times \log\left(\frac{a^2}{b^3}\right) - 7 \times \log(a^6 b^3) \\
 &= 3 \log(a) + 5 \log(a) + 2 \times (\log(a^2) - \log(b^3)) - 7 \times (\log(a^6) + \log(b^3)) \\
 &= 3 \log(a) + 5 \log(a) + 2 \times (2 \log(a) - 3 \log(b)) - 7 \times (6 \log(a) + 3 \log(b)) \\
 &= 3 \log(a) + 5 \log(a) + 4 \log(a) - 6 \log(b) - 42 \log(a) - 21 \log(b) \\
 &= -30 \log(a) - 27 \log(b)
 \end{aligned}$$

$$= -3(10 \log(a) + 9 \log(b)).$$

Ainsi: $B = -3(10 \log(a) + 9 \log(b)).$