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TLE

Technologique Mathématiques

ax : Variations & Propriétés



CORRIGÉ DE L'EXERCICE

SIMPLIFICATIONS DE a^{\dots}

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CORRECTION

Simplifions au maximum les expressions suivantes:

1. $A = 1 - ((a^{\frac{3}{2}}) \times a^{-3x+7})^2 \times a^3$:

$$\begin{aligned} A &= 1 - (a^{\frac{3}{2} \cdot (-3x+7)})^2 \times a^3 = 1 - (a^{(-3x+\frac{17}{2})})^2 \times a^3 \\ &= 1 - a^{(2 \times (-3x+\frac{17}{2}))} \times a^3 \\ &= 1 - a^{(-6x+17)} \times a^3 \\ &= 1 - a^{(-6x+17+3)}. \end{aligned}$$

D'où: $A = 1 - a^{-6x+20}$.

2. $B = (a^{x+3})^4 \times (a^{x+6} - a^{-3x})$:

$$\begin{aligned} B &= (a^{(4 \times (x+3))}) \times (a^{x+6} - a^{-3x}) = a^{(4x+12)} \times (a^{x+6} - a^{-3x}) \\ &= (a^{(4x+12)} \times a^{x+6}) - (a^{(4x+12)} \times a^{-3x}) \\ &= a^{(4x+12+x+6)} - a^{(4x+12-3x)}. \end{aligned}$$

D'où: $B = a^{5x+18} - a^{x+12}$.

$$3. C = a^{(3x+1)^2} \times a^{-6x} - 4 a^{-x+9}.$$

$$C = a^{(9x^2+1+6x)} \times a^{-6x} - 4 a^{-x+9} = a^{(9x^2+1+6x-6x)} - 4 a^{-x+9}.$$

$$\text{D'où: } C = a^{9x^2+1} - 4 a^{-x+9}.$$