

Exercice 2

$$(1) \quad (-a^7b)^3 \cdot (-a^4(-b)^2)^6 = -a^{21}b^3a^{24}b^{12} = -a^{45}b^{15}$$

$$(2) \quad -\left[2a^6 \cdot (-ab^2)^3\right]^4 = -2^4a^{24}(-ab^2)^{12} = -16a^{24}a^{12}b^{24} = -16a^{36}b^{24}$$

$$(3) \quad \frac{-x^8y^{15}}{(-x^2y^9)^3} \cdot x^2y^0 = \frac{x^8y^{15}x^2}{x^6y^{27}} = \frac{x^{8+2-6}}{y^{27-15}} = \frac{x^4}{y^{12}}$$

Exercice 3

$$(1) \quad 3 - \frac{-\frac{3}{2} - \left(-\frac{2}{5}\right)^2 + \frac{(-1)^5}{50}}{-\left(\frac{1}{4} - \frac{3}{5}\right)^2} = 3 - \frac{-\frac{3}{2} - \frac{4}{25} - \frac{1}{50}}{-\left(\frac{5}{20} - \frac{12}{20}\right)^2}$$

$$= 3 - \frac{-\frac{75}{50} - \frac{8}{50} - \frac{1}{50}}{-\left(\frac{7}{20}\right)^2} = 3 - \frac{-\frac{84}{50}}{-\frac{49}{400}} = 3 - \frac{84}{50} \cdot \frac{400}{49}$$

$$= 3 - \frac{12}{1} \cdot \frac{8}{7} = \frac{21}{7} - \frac{96}{7} = -\frac{75}{7}$$

$$(2) \quad \frac{(-14)^5 \cdot \left(\frac{63}{5}\right)^{12}}{\left(-\frac{49}{20}\right)^9 \cdot 6^{22}} = \frac{-2^5 \cdot 7^5 \cdot \frac{7^{12} \cdot 3^{24}}{5^{12}}}{-\frac{7^{18}}{2^{18} \cdot 5^9} \cdot 2^{22} \cdot 3^{22}}$$

$$= \frac{\frac{2^5 \cdot 7^{17} \cdot 3^{24}}{5^{12}}}{\frac{2^{22} \cdot 3^{22} \cdot 7^{18}}{2^{18} \cdot 5^9}} = \frac{2^5 \cdot 7^{17} \cdot 3^{24}}{5^{12}} \cdot \frac{5^9}{2^4 \cdot 3^{22} \cdot 7^{18}}$$

$$= \frac{2 \cdot 3^2}{7 \cdot 5^3} = \frac{18}{7 \cdot 125} = \frac{18}{875}$$

Exercice 4

$$(1) \quad \text{a) } 834,772 \cdot 10^{-21} = 8,34772 \cdot 10^{-19}$$

$$\text{b) } (4 \cdot 10^{-5}) \cdot 61'000'000'000 = 4 \cdot 10^{-5} \cdot 6,1 \cdot 10^{10} = 24,4 \cdot 10^5 = 2,44 \cdot 10^6$$

$$(2) \quad \text{a) } 0,45 \cdot 10^{-4} = 0,000045$$

$$\text{b) } \frac{1}{2 \cdot 10^5} - 3 \cdot 10^{-4} = 0,5 \cdot 10^{-5} - 3 \cdot 10^{-4} = 0,000005 - 0,0003 = -0,000295$$

Bon courage !

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