

Exercice 4 Simplifier les expressions suivantes :

$$1. A = \frac{(-18)^7 \times 2^4 \times (-50)^3}{(-25)^4 \times (-4)^5 \times (-27)^2} = -\frac{9^7 \times 2^7 \times 2^4 \times 2^3 \times 25^3}{25^4 \times 2^{10} \times 3^2 \times 9^2} = -\frac{9^5 \times 2^4}{25 \times 9} = -\frac{9^4 \times 2^4}{25} = -\frac{104976}{25};$$

$$2. B = \frac{1 - (-2)^2}{1 - (-2)^3} = \frac{1 - 4}{1 - (-8)} = \frac{-3}{9} = -\frac{1}{3}$$

$$3. C = \frac{1 - \left(\frac{1}{2}\right)^3}{1 - \frac{1}{2}} = \frac{1 - \frac{1}{8}}{\frac{1}{2}} = \frac{7}{8} \times 2 = \frac{7}{4}$$

$$4. D = \frac{1 - \left(-\frac{1}{2}\right)^4}{1 - \left(-\frac{1}{2}\right)^3} = \frac{1 - \frac{1}{16}}{1 - \left(-\frac{1}{8}\right)} = \frac{\frac{15}{16}}{\frac{9}{8}} = \frac{15}{16} \times \frac{8}{9} = \frac{5 \times 3 \times 8}{8 \times 2 \times 3 \times 3} = \frac{5}{6}$$