

CORRECTION DU TEST N°02

Exercice 1 :

Compléter le formulaire suivant

$$a^n \times a^p = a^{n+p}$$

$$a^0 = 1$$

$$a^{-n} = \frac{1}{a^n}$$

$$(ab)^n = a^n b^n$$

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$\frac{a^n}{a^p} = a^{n-p} = \frac{1}{a^{p-n}}$$

$$a > 0, b > 0, \ln(ab) = \ln(a) + \ln(b)$$

$$a > 0, b > 0, \ln\left(\frac{a}{b}\right) = \ln(a) - \ln(b)$$

$$x \in \mathbb{R} \text{ et } a > 0, \ln(a^x) = x \ln(a)$$

$$b > 0, \ln\left(\frac{1}{b}\right) = -\ln(b)$$

$$\ln(1) = 0$$

$$\ln(e) = 1$$

$$\ln(2) \approx 0,7$$

$$\ln(3) \approx 1,1$$

$$\forall x \in \mathbb{R}, \ln(e^x) = x$$

Exercice 2

Calculer les nombres suivants

$$A = \frac{1}{2} - \frac{1}{5} + \frac{3}{10} = \frac{5-2+3}{10} = \frac{6}{10} = \frac{3}{5}$$

$$\boxed{A = \frac{3}{5}}$$

$$B = \frac{1}{32} - \frac{3}{20}$$

$32 = 2^5$ et $20 = 2^2 \times 5$ donc un dénominateur commun est $2^5 \times 5$
d'où

$$B = \frac{1}{32} - \frac{3}{20} = \frac{1 \times 5 - 3 \times 2^3}{2^5 \times 5} = \frac{5 - 24}{2^5 \times 5} = \frac{-19}{32 \times 5} = -\frac{19}{160}$$

$$\boxed{B = -\frac{19}{160}}$$

$$C = \frac{24}{15} \times \frac{55}{64} = \frac{3 \times 8 \times 5 \times 11}{3 \times 5 \times 8 \times 8} = \frac{11}{8}$$

$$\boxed{C = \frac{11}{8}}$$

$$D = \frac{\frac{8}{2}}{\frac{3}{2}} = \frac{8}{2} = 4$$

$$\boxed{D = 4}$$

$$F = \sqrt{45} - \sqrt{20} = \sqrt{3^2 \times 5} - \sqrt{2^2 \times 5} = 3\sqrt{5} - 2\sqrt{5} = \sqrt{5}$$

$$\boxed{F = \sqrt{5}}$$

Exercice 3

Simplifier les expressions suivantes

$$G = \ln(e^3) - \ln(e^2) = 3 - 2 = 1$$

$$\boxed{G = 1}$$

$$H = \ln(3) + \ln\left(\frac{1}{3}\right) = \ln(3) - \ln(3) = 0$$

$$\boxed{H = 0}$$