

CORRECTION TEST N°04

Exercice 1 :

1- Donner les trois identités remarquables

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

$$(a-b)(a+b) = a^2 - b^2$$

2- Compléter le formulaire suivant voir correction TEST 03

$$e^{x+y} =$$

$$e^0 =$$

$$e^{-x}$$

$$e^1 = \approx$$

$$e^{x-y}$$

$$e^{xy} =$$

$$e^{-1} \approx$$

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

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

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

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

$$\ln \dots = 0$$

$$\ln \dots = 1$$

$$\ln(2) \approx$$

$$\ln(3) \approx$$

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

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

Exercice 2

Calculer les nombres suivants :

$$A = \frac{1}{3} + \frac{1}{6} + \frac{1}{9} =$$

$6 = 2 \times 3$ et $9 = 3^2$ donc un dénominateur commun est 2×3^2
d'où

$$A = \frac{1 \times 2 \times 3 + 1 \times 3 + 1 \times 2}{2 \times 3^2} = \frac{6 + 3 + 2}{2 \times 3^2} = \frac{11}{18}$$

$$\boxed{A = \frac{11}{18}}$$

$$B = 1 - 0,234 = 0,766$$

$$\boxed{B = 0,766}$$

$$C = \frac{44}{36} \times \frac{63}{55} = \frac{4 \times 11 \times 9 \times 7}{9 \times 4 \times 5 \times 11} = \frac{7}{5}$$

$$\boxed{C = \frac{7}{5}}$$

$$D = e^{-2\ln(4)} = \frac{1}{e^{\ln(4^2)}} = \frac{1}{4^2} = \frac{1}{16}$$

$$\boxed{D = \frac{1}{16}}$$

$$E = 3\ln(2) - \ln(4) = \ln(2^3) - \ln(4) = \ln\left(\frac{8}{4}\right) = \ln(2)$$

$$\boxed{E = \ln(2)}$$

$$F = e^{3\ln(2) - \ln(4) + 1} = e^{\ln(2) + 1} = e^{\ln(2)} e^1 = 2e$$

$$\boxed{F = 2e}$$

Exercice 3 :

Factoriser les expressions suivantes

$$A(x) = (x+1)(x-2) - 3(x+1)^2$$

$$A(x) = (x+1)[(x-2) - 3(x+1)]$$

$$A(x) = (x+1)(x-2-3x-3)$$

$$\boxed{A(x) = (x+1)(-2x-5)}$$

$$B(x) = 3xe^{-x} - e^{-x}$$

$$\boxed{B(x) = e^{-x}(3x-1)}$$

$$C(x) = x^2 - 1$$

$$\boxed{C(x) = (x-1)(x+1)}$$

Exercice 4 :

Développer $D(x)$

$$D(x) = (e^x + e^{-x})^2$$

$$D(x) = (e^x + e^{-x})^2$$

$$D(x) = e^{2x} + 2e^x e^{-x} + e^{-2x}$$

$$\boxed{D(x) = e^{2x} + 2 + e^{-2x}} \quad \text{car } e^x e^{-x} = e^{x-x} = e^0 = 1$$