Corrections Savoirs SL.1

Corrigé Exercice 1

1) $A = \boldsymbol{x^{n+1}}$ $\quad C = \boldsymbol{x^{n-1}}$ $\quad E = \boldsymbol{x^{n+2}}$

$B = \boldsymbol{x^{1-n}}$ ou $B = \frac{\mathbf{1}}{\boldsymbol{x^{n-1}}}$ $\quad D = \boldsymbol{x^{2n}}$

$H = \boldsymbol{3^{n+1}}$ $\quad J = \boldsymbol{5^{1-n}}$ *ou* $\frac{\mathbf{1}}{\boldsymbol{5^{n-1}}}$ $\quad L = \boldsymbol{2^{2n+6}}$ *ou* $L = 4^{n+3}$

$I = \boldsymbol{2^{n+4}}$ $\quad K = 3^{2-(n+1)} = \boldsymbol{3^{1-n}}$ *ou* $\frac{\mathbf{1}}{\boldsymbol{3^{n-1}}}$

Un peu plus...

$F = \boldsymbol{x^{2-n}}$ ou $F = \frac{\mathbf{1}}{\boldsymbol{x^{n-2}}}$

$G = \boldsymbol{x^{n-2}}$

$M = x^{1-(n+1)} = \boldsymbol{x^{-n}} = \frac{\mathbf{1}}{\boldsymbol{x^n}}$

$N = \frac{\boldsymbol{x^{n+1}}}{\boldsymbol{x}} = \boldsymbol{x^n}$

2) A non simplifiable $\quad C = (-1)^2 = \mathbf{1}$

$B = \boldsymbol{(-1)^{n+1}}$ $\quad D = (-1)^n \times (-1)^2 = \boldsymbol{(-1)^n}$

$E = ((-1)^2)^n = 1^n = \mathbf{1}$

$F = (-1)^{2n} \times (-1) = \boldsymbol{-1}$

3) $A = \boldsymbol{2^{2n+2}}$ $\quad B = \frac{3^m}{2^m \times 3^m} = \frac{\mathbf{1}}{\boldsymbol{2^m}}$ $\quad C = \frac{\mathbf{1}}{\boldsymbol{q}}$

$E = \frac{2^{2n} \times 3^{n+1}}{3^n \times 2^{n+1}}$
$E = \boldsymbol{3 \times 2^{n-1}}$

$F = (-1)^{2p} \times 2^{2p}$
$F = 2^{2p} = \boldsymbol{4^p}$

$G = (-1)^{n+2} \times \frac{3^{n+1}}{3}$
$G = (-1)^n \times 3^n$
$G = \boldsymbol{(-3)^n}$

$I = \big(-5 \times (-1)\big)^n \times (-1)$
$\mathrm{I} = \boldsymbol{-5^n}$

$J = \boldsymbol{3^n}$

$K = \frac{2}{3^{2n} \times (-1)^{2n+1} \times 2^{2n+1}}$
$K = \frac{1}{-(-1)^{2n} \times^{(3\times 2)^{2n}}}$
$K = -\frac{\mathbf{1}}{\boldsymbol{6^{2n}}}$

$D = \frac{5}{2^n} \times 2^{3n} = 5 \times 2^{2n}$
$D = \boldsymbol{5 \times 4^n}$

$H = \frac{1}{(-1)^{2n-4}}$
$H = \frac{1}{(-1)^{2(n-2)}}$
$H = \mathbf{1}$

$L = \frac{7^{n+1}}{2^n \times 7^n} = \frac{\mathbf{7}}{\boldsymbol{2^n}}$

Corrigé Exercice 2

1) $A = \boldsymbol{x^n \times x}$ $\quad B = \frac{\boldsymbol{2^n}}{\mathbf{2}}$ $\quad D = \frac{\mathbf{1}}{\mathbf{2}} \times \left(\frac{\mathbf{1}}{\mathbf{2}}\right)^{\boldsymbol{n}}$ ou $D = \frac{1}{2^{n+1}} = \frac{\mathbf{1}}{\boldsymbol{2 \times 2^n}}$ $\quad E = \frac{2 \times 2^n}{3^n \times \frac{1}{3}}$

$C = 3^{2n} \times 3^2 = \boldsymbol{9 \times 9^n}$ $\quad E = 2 \times 3 \times \frac{2^n}{3^n} = \boldsymbol{6 \times \left(\frac{2}{3}\right)^n}$

Un peu plus...

$F = \boldsymbol{5 \times 5^n}$

$G = \left(\frac{5}{2}\right)^2 \times \left(\frac{5}{2}\right)^n$
$G = \frac{\mathbf{25}}{\mathbf{4}} \times \left(\frac{\mathbf{5}}{\mathbf{2}}\right)^{\boldsymbol{n}}$

2) $A = 2^n(1 - 2^2)$
$A = \boldsymbol{-3 \times 2^n}$

$B = 3^m + 2^m \times 3^m$
$B = \boldsymbol{3^m(1 + 2^m)}$

$C = 2 \times 2^{2n} - 3 \times 4^n$
$C = 2 \times 4^n - 3 \times 4^n$
$C = 4^n(2 - 3) = \boldsymbol{-4^n}$

$E = (-3)^n - (-2)^n$
$E = \boldsymbol{(-1)^n(3^n - 2^n)}$

$F = 2^8(2^2 + 1)$
$F = \boldsymbol{5 \times 2^8}$

$G = \boldsymbol{x^n(x - 2)}$

$D = 5 \times 5^n + \frac{5^n}{5}$
$D = 5^n\left(5 + \frac{1}{5}\right)$
$D = \frac{\mathbf{26}}{\mathbf{5}} \times \mathbf{5^n}$

$H = \boldsymbol{x^n(3x^2 - x^1 + 2)}$

$J = 3 \times 2^n - 2 \times 2^n$
$J = 2^n(3-2) = \mathbf{2^n}$

$K = \frac{2}{5 \times 5^n} + \frac{3}{5^n}$
$K = \frac{1}{5^n}\left(\frac{2}{5} + 3\right)$
$K = \mathbf{\frac{17}{5} \times \left(\frac{1}{5}\right)^n}$

$L = \frac{1}{4} \times 3^n + \frac{3}{4} \times 3^n$
$L = \left(\frac{1}{4} + \frac{3}{4}\right) 3^n = \mathbf{3^n}$

$M = \frac{5}{3} \times 2^{2n+2} - \frac{1}{3} \times 2^{2n}$
$M = 2^{2n}\left(\frac{5}{3} \times 2^2 - \frac{1}{3}\right)$
$M = \mathbf{\frac{19}{3} \times 2^{2n}}$