Corrigé Savoir S.1

Corrigé Entraînement n°1

1) a. $\boldsymbol{u_2} = \frac{1}{2+3} - 2\times 2^2 = \frac{1}{5} - 8 = -\frac{\mathbf{39}}{\mathbf{5}}$

b. $\boldsymbol{u_{n-1}} = \frac{1}{n-1+3} - 2(n-1)^2 = \frac{\mathbf{1}}{\mathbf{n+2}} \mathbf{-2n^2+4n-2}$ *et* $\boldsymbol{u_n + 1} = \frac{\mathbf{1}}{\mathbf{n+3}} \mathbf{- 2n^2 + 1}$

2) a) On calcule $\boldsymbol{v_2} = 4v_1 + \frac{1}{v_1} = 4\times\frac{1}{2} + \frac{1}{\frac{1}{2}} = 2 + \frac{2}{1} = \mathbf{4}$ puis $\boldsymbol{v_3} = 4v_2 + \frac{1}{v_2} = 4\times 4 + \frac{1}{4} = \mathbf{\frac{65}{4}}$

b) $\boldsymbol{v_{n-1}} = 4v_{n-2} + \frac{1}{v_{n-2}}$ Et $\boldsymbol{v_n - 1} = 4v_{n-1} + \frac{1}{v_{n-1}} - 1$

Corrigé Entraînement n°2

1) a) $\boldsymbol{T_2} = 2T_1 + \frac{1}{T_0} = 2\times 1 + \frac{1}{2} = \mathbf{\frac{5}{2}}$ et $\boldsymbol{T_3} = 2T_2 + \frac{1}{T_1} = 2\times\frac{5}{2} + \frac{1}{1} = \mathbf{6}$

b) $\boldsymbol{T_{n+2}} = \mathbf{2T_{n+1} + \frac{1}{T_n}}$ $\boldsymbol{T_n - 2} = \mathbf{2T_{n-1} + \frac{1}{T_{n-2}} - 2}$

2) a. $\boldsymbol{s_4} = 5\sqrt{4} + \frac{1}{4+1} = 10 + \frac{1}{5} = \mathbf{\frac{51}{5}}$

b. $\boldsymbol{s_n - 1} = 5\sqrt{n} + \frac{1}{n+1} - 1 = \mathbf{5\sqrt{n} - \frac{n}{n+1}}$ *et* $\boldsymbol{s_{n+1}} = 5\sqrt{n+1} + \frac{1}{(n+1)+1} = \mathbf{5\sqrt{n+1} + \frac{1}{n+2}}$

Corrigé Entraînement n°3

1) a. $\boldsymbol{A_3} = 1 + (3-1)(3+2) = 1+2\times 5 = \mathbf{11}$

b. $\boldsymbol{A_{n-1}} = 1 + \big((n-1)-1\big)\big((n-1)+2\big) = 1 + (n-2)(n+1) = \mathbf{n^2 - n - 1}$

$\boldsymbol{A_n + 1} = 1 + (n-1)(n+2) + 1 = 2 + n^2 + n - 2 = \mathbf{n^2 + n}$

2) a) $b_1 = \frac{0}{2b_0 + 1} = \mathbf{0}$ et $b_2 = \frac{1}{2b_1 + 1} = \frac{1}{2\times 0 + 1} = \mathbf{1}$

b) $b_{n+2} = \frac{\mathbf{n}}{\mathbf{2b_{n+1} + 1}}$ et $b_n - 1 = \frac{\mathbf{n}}{\mathbf{2b_{n-1} + 1}} \mathbf{- 1}$