

Ex 1°1  
( $V_n$ )

$$V_{n+1} = \frac{1}{1+V_n} \quad n \in \mathbb{N} \quad V_0 = 2$$

$V_1; V_2; V_3$

$$V_1 = \frac{1}{1+V_0} = \frac{1}{1+2} = \frac{1}{3}$$

$$1 + \frac{1}{3} = \frac{1}{1} + \frac{1}{3} = \frac{1 \times 3}{1 \times 3} + \frac{1}{3} = \frac{3}{3} + \frac{1}{3}$$

$$V_2 = \frac{1}{1+V_1} = \frac{1}{1+\frac{1}{3}} = \frac{1}{\frac{3}{3} + \frac{1}{3}} = \frac{1}{\frac{4}{3}} = \frac{3}{4}$$

$$V_3 = \frac{1}{1+V_2} = \frac{1}{1+\frac{3}{4}} \quad \uparrow \quad 1 \div (1 + (1 \div 3))$$

$$V_3 = \frac{1}{\frac{4}{4} + \frac{3}{4}} = \frac{1}{\frac{7}{4}} = \frac{4}{7}$$

Ex n°2

$n \in \mathbb{N}$

$$\rightarrow \underline{U_{n+1}} = 2\underline{U_n} - 1$$

$$U_2 = 4$$

$U_2$  et  $U_3$

$$U_3 = 2U_2 - 1 \Rightarrow U_3 = 2 \times 4 - 1 = 7$$

~~$$U_1 = 2U_2 - 1$$~~

$$\underline{U_2} = 2\underbrace{U_1}_{?} - 1 \Rightarrow 4 = 2U_1 - 1 \Rightarrow 4 + 1 = 2U_1$$
$$\frac{4+1}{2} = U_1 \quad U_1 = \frac{5}{2}$$

Ex n° 3  $\sqrt[n]{n} = \frac{2-n}{n+3} \quad n \in \mathbb{N}$

$$\sqrt[0]{0} = 0$$

$$\sqrt[1]{1} = \frac{2-1}{1+3} = \frac{1}{4}$$

$$\sqrt[1]{1}; \sqrt[30]{30}; \sqrt[100]{100}$$

$$\sqrt[30]{30} = \frac{2-30}{30+3} = \frac{-28}{33}$$

$$\sqrt[100]{100} = \frac{2-100}{100+3} = \frac{-98}{103}$$

$\Gamma \propto n^4$        $n \in \mathbb{N}$        $0, 1, \dots$

$$\sqrt{n} = -n^2 + 1$$

$$\sqrt{8} =$$

$$\sqrt{10} =$$

$$\sqrt{8} = -8^2 + 1 = -64 + 1 = -63$$

$$\sqrt{10} = -10^2 + 1 = -100 + 1 = -99$$

Ex n°5

$n \in \mathbb{N}$

$$U_n = \frac{1}{5}n - 4$$

$$U_6 = ? \quad U_{40} = ?$$

$$U_6 = \frac{1}{5} \times 6 - 4 = \frac{6}{5} - 4 = \frac{6}{5} - \frac{4 \times 5}{5} = \frac{6}{5} - \frac{20}{5} = -\frac{14}{5}$$

$$U_{40} = \frac{1}{5} \times 40 - 4 = \frac{40}{5} - 4 = 8 - 4 = 4$$

Ex n°6

$(U_n)$

suite

arithmétique

$(U_n)$  définie sur  $\mathbb{N}$

$$U_{n+1} = U_n + r$$

$$r = -3$$

$$\text{et } U_0 = 8$$

$$U_1 = ?$$

$$U_1 = U_0 + r \Rightarrow U_1 = 8 - 3 = 5$$

$$U_2 = ?$$

$$U_2 = U_1 + r \Rightarrow U_2 = 5 - 3 = 2$$

$$U_{10} = ?$$

$$U_n = U_0 + nr \Rightarrow U_{10} = 8 + 10 \times (-3) = -22$$

$$U_{100} = ?$$

$$U_{100} = U_0 + 100 \times (-3) \Rightarrow U_{100} = 8 + 100 \times (-3) = -292$$

Ex n° 7

$$U_n = \frac{-n+6}{5}$$

avec  $n$  entier supérieur ou  
égal à 2  $n \geq 2$

Calculer les 5 premiers termes

$$U_2 = \frac{-2+6}{5} = \frac{4}{5}$$

$$U_3 = \frac{-3+6}{5} = \frac{3}{5}$$

$$U_4 = \frac{-4+6}{5} = \frac{2}{5}$$

$$U_5 = \frac{-5+6}{5} = \frac{1}{5}$$

$$U_6 = \frac{-6+6}{5} = 0$$