

Correction du Test 2 - Suite arithm

Ex 1: 1) $u_m = u_0 + m \times r$ donc $u_m = 5 - 3m$ ($m \in \mathbb{N}$)
2) $u_{20} = 5 - 60 = -55$ (1)

Ex 2: $u_3 = -2$ $u_7 = 10$

1) $u_7 = u_3 + 4 \times r$ 2) $u_3 = u_0 + 3r$
(\Rightarrow) $10 = -2 + 4r$ (\Rightarrow) $-2 = u_0 + 9$
(\Rightarrow) $12 = 4r$ (\Rightarrow) $u_0 = -11$ (1,5)
(\Rightarrow) $r = 3$ (u_m) suite arithmétique de raison 3 de 1^{er} terme $u_0 = -11$

Ex 3: 1) $\begin{cases} u_0 = 2 \\ u_{m+1} = 2u_m - 1 \end{cases}$ ($m \in \mathbb{N}$)

$u_0 = 2$ $u_1 = 2u_0 - 1 = 4 - 1 = 3$ $u_2 = 2u_1 - 1 = 6 - 1 = 5$
 $\begin{cases} u_1 - u_0 = 3 - 2 = 1 \\ u_2 - u_1 = 5 - 3 = 2 \end{cases} \neq$ (u_m) n'est pas arithmétique

2) $v_m = -m - 2$ ($m \in \mathbb{N}$)
on reconnaît $v_m = v_0 + m \times r$ $\begin{cases} v_0 = -2 \\ r = -1 \end{cases}$ (1,5)
(v_m) suite arithmétique.

Ex 4: $S = -3 - 1 + 1 + 3 + 5 + \dots + 179 = u_0 + u_1 + \dots + u_m$
 $\begin{matrix} \curvearrowright & \curvearrowright & \curvearrowright \\ +2 & +2 & +2 \end{matrix}$ $\begin{cases} u_0 = -3 \\ u_m = -3 + 2m \end{cases}$ (m?)

$u_m = 179 \Leftrightarrow -3 + 2m = 179 \Leftrightarrow 2m = 182 \Leftrightarrow m = 91$

$S = u_0 + u_1 + \dots + u_{91} = \frac{(u_0 + u_{91}) \times 92}{2}$ (1,5)

donc $S = \frac{(-3 + 179) \times 92}{2} = \frac{176 \times 92}{2} = 8096$