

Suites arithmétique

$$\begin{aligned} U_0 &= 1 \\ U_1 &= 3 \\ U_2 &= 5 \\ U_3 &= 7 \\ &\vdots \end{aligned} \quad \begin{array}{l} \downarrow +2 \\ \downarrow +2 \\ \downarrow +2 \end{array}$$

(U_n) suite arithmétique de raison 2
de premier terme $U_0 = 1$
 $U_1 = 3$ (deuxième terme)
 U_2 (Troisième terme)

$$\begin{aligned} U_0 &= 3 \\ U_1 &= 7 \\ U_2 &= 11 \\ U_3 &= 15 \\ U_4 &= 19 \\ &\vdots \end{aligned} \quad \begin{array}{l} \downarrow +4 \\ \downarrow +4 \\ \downarrow +4 \end{array}$$

(U_n) suite arithmétique de raison 4 ($r=4$)
et de premier terme $U_0 = 3$

$$\begin{aligned} U_0 &= 1 \\ U_1 &= 5 \\ U_2 &= 7 \end{aligned} \quad \begin{array}{l} \downarrow +4 \\ \downarrow 2 \end{array}$$

(U_n) n'est pas une suite arithmétique

Exercice

(U_n) S.A de raison $r=2$
et de premier terme $U_0 = 5$
calculer U_4 et U_{20}

Rep $U_4 = 13$

$$\begin{aligned} U_0 &= 5 \\ U_1 &= 7 \\ U_2 &= 9 \\ U_3 &= 11 \\ U_4 &= 13 \end{aligned} \quad \begin{array}{l} \downarrow +2 \\ \downarrow +2 \\ \downarrow +2 \\ \downarrow +2 \end{array}$$

$$U_4 = U_0 + 4 \times 2$$

$$\begin{aligned} U_{20} &= U_0 + 20r \\ &= 5 + 20 \times 2 = 45 \end{aligned}$$



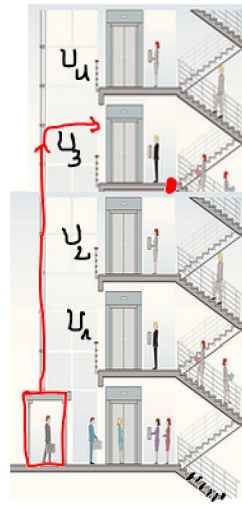
في دارك... انتخبون على قرايت اصفارك

$$U_1 = U_0 + r = 4 + 15 = 19$$

$$U_2 = U_1 + r = 19 + 15 = 34$$

$$U_3 = U_2 + r = 34 + 15 = 49$$

$$U_3 = U_0 + 3r = 4 + 15 \times 3 = 49$$

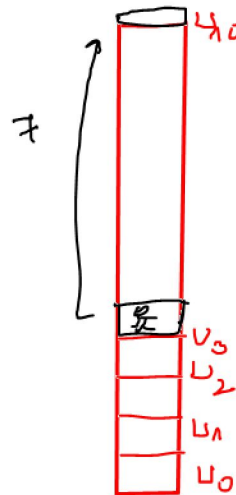


$$r = 15$$

$$U_0 = \text{الطابق الأرضي} \quad U_0 = 4$$

$$U_{10} = U_0 + 10r$$

$$U_{10} = U_3 + 7r$$



(U_n) S.A. de raison $r = 2$ et $U_3 = 11$

1) Calculer U_0

2) Exprimer U_n en fonction de n ($n \in \mathbb{N}$)

$$U_3 = U_0 + 3r$$

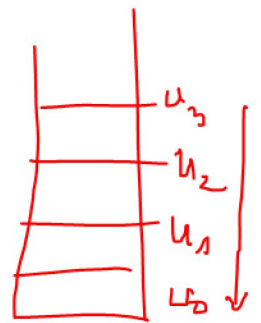
$$U_4 = U_3 + 4r$$

$$\begin{aligned} 1) \quad U_0 &= U_3 - 3r \\ &= 11 - 3 \times 2 = 5 \end{aligned}$$

$$\begin{aligned} 2) \quad U_n &= U_0 + nr \\ &= 5 + n \times 2 \end{aligned}$$

$$U_n = 2n + 5$$

Terme générale de la suite (U_n)



في دارك... إتهن على قرابت إصغارك

(U_n) S.A tq $U_4 = 13$ et $U_6 = 19$

~~$U_n = 3n + 1$~~
 $U_{10} = 31$

1) Déterminer r et U_0

2) Calculer U_{10}

Rsp

1) $U_6 = U_4 + 2r$
 $\Leftrightarrow 19 = 13 + 2r$
 $\Leftrightarrow 6 = 2r$
 $\Leftrightarrow r = 3$

$U_0 = U_4 - 4r = 13 - 4 \times 3 = 1$

$U_0 = U_6 - 6r = 19 - 6 \times 3 = 1$

2) $U_{10} = U_0 + 10r = 1 + 10 \times 3 = 31$

$U_{10} = U_4 + 6r = 13 + 6 \times 3 = 13 + 18 = 31$

$U_{10} = U_6 + 4r = 19 + 4 \times 3 = 19 + 12 = 31$

(U_n) S.A tq

$U_1 + U_3 = 18$ et $r = 2$

1) Calculer U_0

2) En déduire le Terme général de la suite (U_n)

$r = 2$

1) $U_1 + U_3 = 18$

$\Leftrightarrow U_0 + r + U_0 + 3r = 18$

$\Leftrightarrow 2U_0 + 4r = 18$

$\Leftrightarrow 2U_0 + 8 = 18$

$\Leftrightarrow 2U_0 = 10$

$\Leftrightarrow U_0 = 5$

2) m.e.v

$U_n = U_0 + nr$

$= 5 + n \times 2 = 2n + 5$



في دارك... إترن علي قرابت إصغارك

(U_n) S.A t_q

$$U_3 + U_7 = -18 \text{ et } U_1 = -1$$

1) Déterminer r et U_0

2) En déduire le terme général de la suite (U_n)

$$2) U_n = U_0 + nr = 1 - 2n$$

$$U_n = U_1 + (n-1)r = -1 + (n-1)(-2) \\ = -1 - 2n + 2 = 1 - 2n$$

$$1) U_3 + U_7 = -18$$

$$\Leftrightarrow U_1 + 2r + U_1 + 6r = -18$$

$$\Leftrightarrow 2U_1 + 8r = -18$$

$$\Leftrightarrow -2 + 8r = -18$$

$$\Leftrightarrow 8r = -18 + 2$$

$$\Leftrightarrow 8r = -16$$

$$\Leftrightarrow r = -2$$

$$U_0 = U_1 - r \\ = -1 - (-2) \\ = 1$$

(U_n) S.A t_q $U_1 = 4$ et $U_2 + U_4 = 20$

1) Déterminer r et U_0

2) Terme général

$$U_2 + U_4 = 20 \Leftrightarrow U_1 + r + U_1 + 3r = 20$$

$$\Leftrightarrow 2U_1 + 4r = 20$$

$$\Leftrightarrow U_1 + 2r = 10$$

$$\Leftrightarrow 4 + 2r = 10$$

$$\Leftrightarrow 2r = 6$$

$$\Leftrightarrow r = 3$$

$$U_0 = U_1 - r = 4 - 3 = 1$$

$$r = 3 \text{ et } U_0 = 1$$

$$2) U_n = U_0 + nr \\ = 1 + 3n$$



في دارك... إتهن على قرابت إصغارك

$$u_0 = u_1 - \pi = 4 - 3 = 1$$

$$U_n = U_0 + nr$$
$$= 1 + 3n$$



$$U_1 + U_4 + U_5 = 23$$

$$U_2 - n + U_2 + 2n + U_2 + 3n = 23$$

$$3U_2 + 4n = 23$$

$$15 + 4n = 23$$

$$4n = 23 - 15 = 8$$

$$\Rightarrow n = \frac{8}{4} = 2$$

$$U_0 = U_2 - 2n = 5 - 4 = 1$$



في دارك... انتهمون علمي قرابت اصفارك