

# PAGINA 35

## PUNTO 1:

$$\textcircled{A} a_n = 5n$$

$$a_1 = 5 \times 1 \\ = 5$$

$$a_2 = 5 \times 2 \\ = 10$$

$$a_3 = 5 \times 3 \\ = 15$$

$$a_4 = 5 \times 4 \\ = 20$$

$$a_5 = 5 \times 5 \\ = 25$$

$$\textcircled{B} a_n = (-1)^2 (2n)$$

$$a_1 = (-1)^2 (2 \times 1)$$

$$a_1 = 2$$

$$a_2 = (-1)^2 (2 \times 2)$$

$$a_2 = 4$$

$$a_3 = (-1)^2 (2 \times 3)$$

$$a_3 = 6$$

$$a_4 = (-1)^2 (2 \times 4)$$

$$a_4 = 8$$

$$a_5 = (-1)^2 (2 \times 5)$$

$$a_5 = 10$$

$$\textcircled{C} a_n = 2^2 + n^3$$

$$a_1 = 2^2 + 1^3$$

$$a_1 = 4 + 1$$

$$a_1 = \textcircled{5}$$

$$a_2 = 2^2 + 2^3$$

$$a_2 = 4 + 8$$

$$a_2 = \textcircled{12}$$

$$a_3 = 2^2 + 3^3$$

$$a_3 = 4 + 27$$

$$a_3 = \textcircled{31}$$

$$a_4 = 2^2 + 4^3$$

$$a_4 = 4 + 64$$

$$a_4 = \textcircled{68}$$

$$a_5 = 2^2 + 5^3$$

$$a_5 = 4 + 125$$

$$a_5 = \textcircled{129}$$

$$\textcircled{D} a_n = \frac{3n}{1+2n}$$

$$a_1 = \frac{3 \times 1}{1 + 2 \times 1} = \frac{3}{1 + 2} = \frac{3}{3} = \textcircled{1}$$

$$a_2 = \frac{3 \times 2}{1 + 2 \times 2} = \frac{6}{1 + 4} = \textcircled{\frac{6}{5}}$$

$$a_3 = \frac{3 \times 3}{1 + 2 \times 3} = \frac{9}{1 + 6} = \textcircled{\frac{9}{7}}$$

$$a_4 = \frac{3 \times 4}{1 + 2 \times 4} = \frac{3 \times 4}{1 + 8} = \frac{\cancel{3} \times 4}{\cancel{3}} = \textcircled{\frac{4}{3}}$$

$$a_5 = \frac{3 \times 5}{1 + 2 \times 5} = \frac{15}{1 + 10} = \textcircled{\frac{15}{11}}$$

$$\textcircled{E} a_n = -(-1)^n (5n - 3)$$

$$a_1 = -(-1)^1 (5 \times 1 - 3)$$

$$= -(-1) \cdot 2$$

$$= 1 \cdot 2$$

$$= \textcircled{2}$$

$$a_2 = -(-1)^2 (5 \times 2 - 3)$$

$$= -1(5 \times 2 - 3)$$

$$= -1(10 - 3)$$

$$= -1 \cdot 7$$

$$= \textcircled{-7}$$

$$Q_3 = -(-1)^3(5 \times 3 - 3)$$

$$= -(-1)(5 \times 3 - 3)$$

$$= -(-1)(15 - 3)$$

$$= 1 \cdot 12$$

$$= \textcircled{12}$$

$$Q_4 = -(-1)^4(5 \times 4 - 3)$$

$$= -1(5 \times 4 - 3)$$

$$= -1(20 - 3)$$

$$= -1 \cdot 17$$

$$= \textcircled{-17}$$

$$Q_5 = -(-1)^5(5 \times 5 - 3)$$

$$= -1(5 \times 5 - 3)$$

$$= -1(25 - 3)$$

$$= -1 \cdot 22$$

$$= \textcircled{-22}$$

$$\textcircled{F} a_n = n^n + n^2 + 2n + 1$$

$$Q_1 = 1^1 + 1^2 + 2 \times 1 + 1$$

$$= 1^1 + 1^2 + 2 + 1$$

$$= 1 + 1 + 2 + 1$$

$$= \textcircled{5}$$

$$Q_2 = 2^2 + 2^2 + 2 \times 2 + 1$$

$$= 2^2 + 4 + 1$$

$$= 8 + 4 + 1$$

$$= \textcircled{13}$$

$$Q_3 = 3^3 + 3^2 + 2 \times 3 + 1$$

$$= 27 + 9 + 6 + 1$$

$$= \textcircled{43}$$

$$Q_4 = 4^4 + 4^2 + 2 \times 4 + 1$$

$$= 256 + 16 + 8 + 1$$

$$= \textcircled{281}$$

$$Q_5 = 5^5 + 5^2 + 2 \times 5 + 1$$

$$= 3125 + 25 + 10 + 1$$

$$= \textcircled{3161}$$

$$\textcircled{G} a_n = 4 + (-4)^n$$

$$a_1 = 4 + (-4)^1$$

$$= 4 - 4$$

$$= \textcircled{0}$$

$$a_2 = 4 + (-4)^2$$

$$= 4 + 16$$

$$= \textcircled{20}$$

$$a_3 = 4 + (-4)^3$$

$$= 4 - 64$$

$$= \textcircled{-60}$$

$$a_4 = 4 + (-4)^4$$

$$= 4 + 256$$

$$= \textcircled{260}$$

$$a_5 = 4 + (-4)^5$$

$$= 4 - 1024$$

$$= \textcircled{-1020}$$

$$\textcircled{H} a_n = 7 + \frac{1}{3^n}$$

$$a_1 = 7 + \frac{1}{3^1}$$

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

$$= \textcircled{\frac{22}{3}}$$

$$a_2 = 7 + \frac{1}{3^2}$$

$$= 7 + \frac{1}{9}$$

$$= \textcircled{\frac{64}{9}}$$

$$a_3 = 7 + \frac{1}{3^3}$$

$$= 7 + \frac{1}{27}$$

$$= \textcircled{\frac{190}{27}}$$

$$a_4 = 7 + \frac{1}{3^4}$$

$$= 7 + \frac{1}{81}$$

$$= \textcircled{\frac{568}{81}}$$

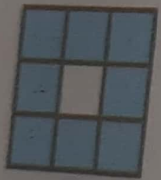
$$a_5 = 7 + \frac{1}{3^5}$$

$$= 7 + \frac{1}{243}$$

$$= \textcircled{\frac{1702}{243}}$$

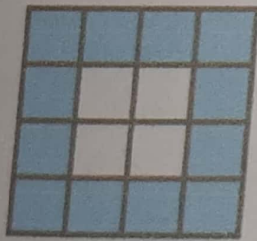
2 Observa la figura. ¿Qué expresión determina la cantidad de azulejos en la figura  $n$ ?

Figura 1



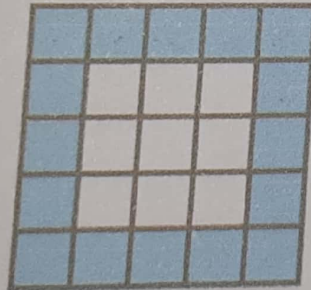
$$8 + 4$$

Figura 2



$$12 + 4$$

Figura 3



$$16$$

$$4n + 4$$

$$4(1) + 4 = 8$$

$$4(2) + 4 = 12$$

$$4(3) + 4 = 16$$

3 Encuentra el término indicado en cada sucesión.

(a)  $a_n$ , si  $a_1 = 3$  y  $a_n = -2 + a_{n-1}$

(b)  $b_n$ , si  $b_1 = 0,25$  y  $b_n = 4b_{n-1}$

(c)  $c_n$ , si  $c_1 = 2$  y  $c_n = c_{n-1}$

(d)  $a_n$ , si  $a_1 = 0$ ,  $a_2 = 1$  y  $a_n = 2a_{n-1} + a_{n-2}$

(a)  $a_1 = 3$

$a_2 = 5$

$a_3 = 7$

$a_4 = 9$

(c)  $c_1 = 2$

$c_2 = 2$

$c_3 = 2$

$c_4 = 2$

(b)  $b_1 = 0,25$

$b_2 = 0,25 \cdot 4 = 1$

$b_3 = 1 \cdot 4 = 4$

$b_4 = 4 \cdot 4 = 16$

$b_5 = 16 \cdot 4 = 64$

$b_6 = 64 \cdot 4 = 256$

(d)  $a_3 = 2 \cdot 1 + 0 = 2$

$a_4 = 2 \cdot 2 + 1 = 5$

$a_5 = 2 \cdot 5 + 2 = 12$

4 Deduce la fórmula del término general de cada sucesión.

(a) 7, 14, 21, 28, ...

(b) 4, 5, 6, 7, 8, ...

(c)  $\frac{2}{2}, \frac{4}{5}, \frac{6}{8}, \frac{8}{11}, \dots$

(d) 3, 6, 12, 24, 48, ...

(b) 3, 8, 15, 24, 35, ...

(c)  $\frac{1}{2}, \frac{4}{5}, \frac{9}{8}, \frac{16}{11}, \dots$

(a)  $7n + 7$

$7(1) + 7 = 14$

$7(2) + 7 = 21$

$7(3) + 7 = 28$

(c)

(c)  $2^2 - 1, 3^2 - 1, 4^2 - 1, 5^2 - 1, 6^2 - 1, 7^2 - 1, \dots$

$a_n = (n+1)^2 - 1$

(b)  $n + 3$

$(1) + 3 = 4$

$(2) + 3 = 5$

$(3) + 3 = 6$

$(4) + 3 = 7$

$(5) + 3 = 8$

(d)  $a_n = a_1 r^{n-1} = (3) \cdot (2)^{n-1}$

$a_1 = (3)(2)^{1-1} = 3$

$a_2 = (3)(2)^{2-1} = 6$

$a_3 = (3)(2)^{3-1} = 12$

$a_4 = (3)(2)^{4-1} = 24$

$a_5 = (3)(2)^{5-1} = 48$

7 Determina cuánto dinero reciben cuatro hermanos, si cada uno, después del mayor, recibirá \$40.000 menos, y además el dinero que se distribuye es de \$2.000.000.

$$H_1 = x$$

$$H_2 = x - 40.000$$

$$H_3 = (x - 40.000) - 40.000$$

$$x - 80.000$$

$$H_4 = x - 80.000 - 40.000$$

$$x - 120.000$$

$$4x - 240.000 = 2.000.000$$

$$4x \quad 2.240.000$$

$$H_1 = 560.000 - 40.000 = 520.000$$

$$H_2 = 560.000 - 40.000 = 520.000$$

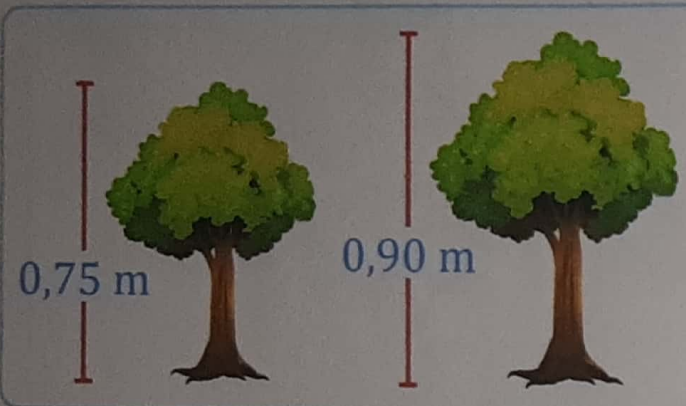
$$H_3 = 560.000 - 80.000 = 480.000$$

$$H_4 = 560.000 - 120.000 = 440.000$$

$$= 2.000.000$$

7 Lee el enunciado, luego responde.

a) Un árbol crece cada año un 20%. Si al comenzar el año su altura era de 0,75 m, ¿cuál es la altura que alcanzará el árbol al cabo de 10 años?



$$a_n = a_1 \cdot r^{(n-1)}$$

$$n = 10$$

$$a_n = 0,75 \cdot (1,2)^{(10-1)}$$

$$a_n = 0,75 \cdot (1,2)^9$$

$$a_n = 3,87 \text{ m}$$

b) Los puntos medios de los lados de un cuadrado con perímetro de 24 cm son los vértices de un segundo cuadrado, y los puntos medios de los lados del segundo cuadrado son los vértices de un tercer cuadrado y así sucesivamente, hasta el décimo cuadrado. Halla el área del décimo cuadrado.

6	1,055
4,24	0,745
2,99	0,526
2,11	0,371
1,492	0,262

$$y(x) = 2 - 1 + 6$$

$$- 2 + 6$$

$$+ 4 = y$$

$$\frac{b}{\sqrt{2}} = 4,24$$

así sucesivamente