

23) 
$$\begin{cases} 2x + ky = 5 \\ kx + (k+4)y = 7 \end{cases}$$
 para que  $k$  no hay solución?

Despejar la  $x$  en la 1era ecú y sustituir en la 2<sup>da</sup>.

$$2x + ky = 5 \quad / -ky$$

$$2x = 5 - ky \quad / \div 2$$

$$x = \frac{1}{2}(5 - ky) = \frac{5 - ky}{2}$$

$$\Rightarrow k \cdot \frac{5 - ky}{2} + (k+4)y = 7 \quad / \cdot 2$$

$$k \cdot \frac{5 - ky}{1} + 2(k+4)y = 14$$

$$k(5 - ky) + 2(k+4)y = 14$$

$$5k - k^2 y + 2(k+4)y = 14 \quad / -5k$$

$$y \underbrace{(-k^2 + 2(k+4))}_{\text{cosa}} = 14 - 5k \quad / \div \text{cosa}$$

Siempre y cuando la cosa  $\neq 0$ .

$$-k^2 + 2(k+4) = 0$$

$$-k^2 + 2k + 8 = 0$$

$$\boxed{k^2 - 2k - 8 = 0}$$

$$\begin{cases} a = 1 \\ b = -2 \\ c = -8 \end{cases}$$

$$\Delta = \cancel{(-2k)^2} - 4k(-8)$$

$$\begin{aligned} \Delta &= (-2)^2 - 4 \cdot 1 \cdot (-8) = \\ &= 4 + 32 = 36 \end{aligned}$$

$$k = \frac{2 \pm 6}{2} = 1 \pm 3 = \begin{cases} 4 \\ -2 \end{cases}$$

$$\underline{k=4} \Rightarrow \begin{cases} 2x + 4y = 5 & / \cdot 2 \\ 4x + 8y = 7 \\ 4x + 8y = 10 \end{cases}$$

$$\boxed{0 = 3} \times \text{(:)}$$

∴ no hay sol'n al sistema para  $k=4$

$$k = -2$$

$$\begin{cases} 2x - 2y = 5 & (1) \\ -2x + (-2+4)y = 7 & (2) \end{cases}$$

$$\rightarrow -2x + 2y = 7 \quad (2)$$

$$\text{Sumamos } (1) + (2) \Rightarrow 0 = 12 \quad (i)$$

$\therefore$  no hay sol'n al sistema para  $k = -2$

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Resp: el sistema tiene sol'n para toda  $k$ , excepto para  $k = 4, -2$ .

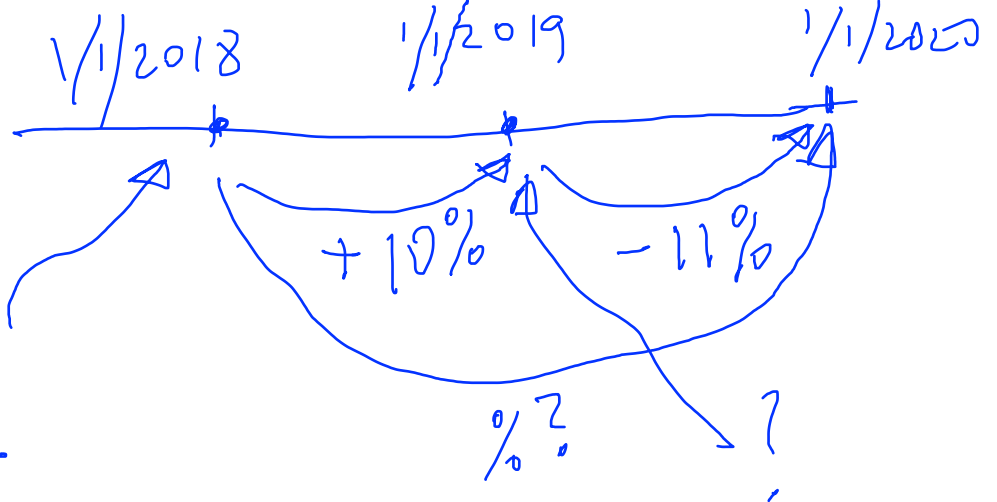
$$(5u, 48, 43, 49^*, 5)^*$$

$$\log x^a = a \log x$$

$$5u = \frac{\log 9}{\log 3} = 2 \quad ?$$

$$\rightarrow = \frac{\log 3^2}{\log 3} = \frac{2 \cancel{\log 3}}{\cancel{\log 3}} = 2$$

48



$P = \text{el precio en } 1/1/2018$

$? = \text{'''''''' } 1/1/2019$

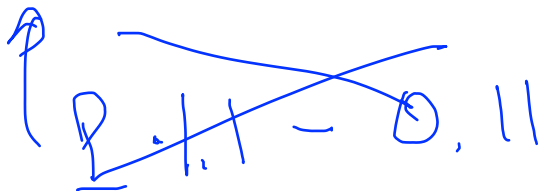


$$10\% = \frac{10}{100}$$

$$P + P \cdot \frac{10}{100} = P \left( 1 + \frac{10}{100} \right) = \underline{1.1 P}$$

$Q = 1.1 P = \text{el precio en } 1/1/2019$

$(?) = \text{'''''''' } 1/1/20$



$$1.1 - 0.11$$

$$\triangle Q - (11\% \text{ de } Q) =$$

5

$$= Q - Q \cdot \frac{11}{100} = Q \left( 1 - \frac{11}{100} \right) =$$

$$= Q \left( \frac{100}{100} - \frac{11}{100} \right) = Q \left( \frac{100 - 11}{100} \right) =$$

$$= Q \left( \frac{89}{100} \right) = 0.89 Q = \underbrace{0.89 \cdot 1.1}_{0.979} P$$

$$= 0.979 \cdot P = \left( 1 - \frac{11}{100} \right) P$$

Resp: en total, el

precio ha bajado 2.1 %

0.89

1.1

89

89

0.979

$$\begin{array}{r} 1.000 \\ - 0.979 \\ \hline \end{array}$$

$$\frac{0.021}{100} = \frac{2.1}{100} = 2.1\%$$

43

$-\frac{3}{2}, \frac{5}{2}, \dots$

(prog. aritmetica)

$\uparrow \quad \uparrow$   
 $a_1 \quad a_2$

$$a_n = a_1 + d \cdot (n-1)$$

$$d = a_2 - a_1$$

$$a_{10} = a_1 + 9 \cdot d = -\frac{3}{2} + 9d, \quad d = \frac{5}{2} - \left(-\frac{3}{2}\right) = \frac{5+3}{2} = \frac{8}{2} = 4$$

$$S_{20} = a_1 + a_2 + \dots + a_{20} = ?$$

$$a_{10} = -\frac{3}{2} + 9 \cdot 4 = 36 - \frac{3}{2} = 34.5$$

$$S_{20} = \frac{20}{2} \left(-\frac{3}{2} + 74.5\right) = \boxed{S_n = \frac{n}{2}(a_1 + a_n)}$$
$$= 10(74.5 - 1.5) = 10 \cdot 73 = \boxed{730}$$

$$a_{20} = -\frac{3}{2} + 19 \cdot 4 = -\frac{3}{2} + (20-1) \cdot 4$$

$$= 80 - \frac{3}{2} - 4 = 80 - 5.5 = \boxed{74.5}$$

50

$$\boxed{x + \frac{1}{x} = 3}$$

$$x^2 + \frac{1}{x^2} = ?$$

$$x^3 + \frac{1}{x^3} = ?$$

Habr  un ATAJO??

$$x^2 + \frac{1}{x^2} + 2 = 9$$

$$\boxed{x^2 + \frac{1}{x^2} = 7}$$

$$\boxed{(a+b)^2 = a^2 + b^2 + 2ab}$$

$$x^2 + 1 = 3x$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$x^2 - 3x + 1 = 0$$

$$x = \frac{3 \pm \sqrt{9-4}}{2} = \frac{3 \pm \sqrt{5}}{2}$$

$$\left(\frac{3+\sqrt{5}}{2}\right)^2 + \left(\frac{2}{3+\sqrt{5}}\right) = \frac{(3+\sqrt{5})^2 + 4}{2(3+\sqrt{5})^2} \text{ etc}$$

(Que flojera)

$$(a+b)^3 = (a+b)(a+b)^2 = (a+b)(a^2 + 2ab + b^2) \\ = a^3 + 2a^2b + b^2a + a^2b + 2ab^2 + b^3 \\ = a^3 + 3a^2b + 3ab^2 + b^3$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

Triáng.  
Pascal

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

$$x^3 + \frac{1}{x^3} = ?$$

$( )^3$

1  
1 1  
1 2 1  
1 3 3 1

$$\boxed{x^3} + 3x^2 \frac{1}{x} + 3x \frac{1}{x^2} + \boxed{\frac{1}{x^3}} = 27$$

$$x^3 + \frac{1}{x^3} = 27 - 3x - \frac{3}{x} = 27 - 3 \left( x + \frac{1}{x} \right)$$

$$= 27 - 3 \cdot 3 = \boxed{18}$$

(51)

99, 106, 110, ?, ?, ?

$$p(x) = ax^2 + bx + c$$

↑  
?

$$\begin{cases} a + b + c = 99 \\ 4a + 2b + c = 106 \\ 9a + 3b + c = 110 \end{cases}$$

etc etc etc (qué flojera).

$$p(1) = 99$$

$$p(2) = 106$$

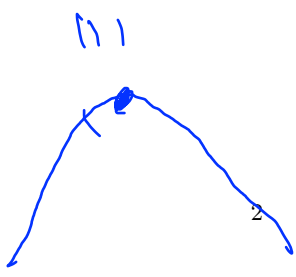
$$p(3) = 110$$

$$p(4) = ?$$

$$p(5) = ?$$

$$p(6) = ?$$





99, 106, 110, 111, 109, 104

7, 4, 1, -2, -5

$$p(x) = ax^2 + bx + c$$

$$p(n+1) = a(n+1)^2 + b(n+1) + c$$

$$p(n) = an^2 + bn + c$$

$$d_n = p(n+1) - p(n) =$$

$$= a(n^2 + 2n + 1 - n^2) + b$$

$$= (2n+1)a + b = 2na + a + b$$

$$= n(2a) + a + b$$

$$= (n-1)(2a) + \underbrace{2a + a + b}_{d_1} =$$

$$= (n-1)(2a) + d_1$$

# Convivio virtual? (Petición)

Qué

- contar chistes
  - del maestro de Aratza
  - de papás
  - de chavos

- con curso

Bravo!



Si



A G U A

S N C M E I R B V O P T L Z

- acertijos(?)

- jugar la lotería

- jugar cartas

- jugar escondidillas

- historias de miedo

- concurso de frases.

- contar anécdotas



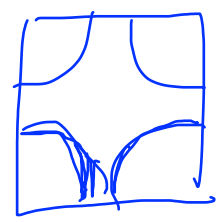
la mano negra

• Cuando: Despues del examen.  
Próx martes 4-6

• Quiénes: van a ser los jueces de los concursos?



Vaca mentirosa



?

