

55. Resol les equacions següents.

a)  $2^{x+4} - 8^x = 0$       b)  $3^{2x} - 3^{x-1} = 3^{x+1} - 1$       c)  $5^{x+3} - 5^{x-1} - 3120 = 0$       d)  $2 \cdot 10^{2x+4} + 3 \cdot 10^{x+2} - 5 = 0$

a)  $2^{x+4} - 8^x = 0 \Rightarrow 2^{x+4} - 2^{3x} = 0 \Rightarrow 2^{x+4} = 2^{3x} \Rightarrow x+4 = 3x \Rightarrow x = 2$

b) Aplicant el canvi de variable  $z = 3^x$

$$3^{2x} - 3^{x-1} = 3^{x+1} - 1 \Rightarrow (3^x)^2 - \frac{1}{3}3^x = 3 \cdot 3^x + 1 = 0 \Rightarrow z^2 - \frac{1}{3}z = 3z + 3 = 0 \Rightarrow 3z^2 - 10z + 3 = 0 \Rightarrow \begin{cases} z = 3 \\ z = \frac{1}{3} \end{cases}$$

$$\Rightarrow \begin{cases} 3^x = 3 \Rightarrow x = 1 \\ 3^x = \frac{1}{3} \Rightarrow x = -1 \end{cases}$$

c)  $5^{x+3} - 5^{x-1} - 3120 = 0 \Rightarrow 5^x \cdot 5^3 - \frac{5^x}{5} - 3120 = 0 \Rightarrow (5^3 - \frac{1}{5})5^x = 3120 \Rightarrow 5^x = \frac{5 \cdot 3120}{5^4 - 1} = 25 \Rightarrow x = 2$

d) Aplicant el canvi de variable  $z = 10^x$

$$2 \cdot 10^{2x+4} + 3 \cdot 10^{x+2} - 5 = 0 \Rightarrow 2 \cdot 10^4 \cdot (10^x)^2 + 3 \cdot 10^2 \cdot 10^x - 5 = 0 \Rightarrow 20000z^2 + 300z - 5 = 0 \Rightarrow$$

$$\Rightarrow 4000z^2 + 60z - 1 = 0 \Rightarrow \begin{cases} z = 0,01 \Rightarrow 10^x = 10^{-2} \Rightarrow x = -2 \\ z = -0,025 \Rightarrow 10^x = -0,025 \text{ sense solució real} \end{cases}$$

56. Exercici interactiu.

57 a 60. Exercicis resoltos.

61. Resol gràficament i per algun mètode algebraic.

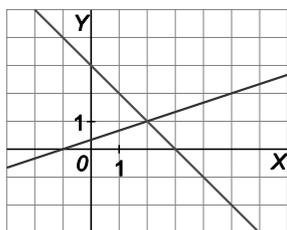
$$\begin{cases} 2x + 2y = 6 \\ x - 3y = -1 \end{cases}$$

b)  $\begin{cases} 3x - 5y = -10 \\ 2x + y = 2 \end{cases}$

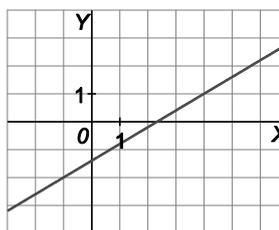
c)  $\begin{cases} 3x - 5y = 7 \\ -6x + 10y = -14 \end{cases}$

d)  $\begin{cases} 2x - 3(4 - y) = 6 \\ 3(2x - 9) - 5y = -1 \end{cases}$

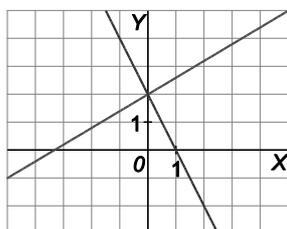
a)  $\begin{cases} 2x + 2y = 6 \\ -2x + 6y = 2 \end{cases} \Rightarrow y = 1, x = 2$  c)



$\begin{cases} 6x - 10y = 14 \\ -6x + 10y = -14 \end{cases}$ , Infinites solucions.



b)  $\begin{cases} 3x - 5y = -10 \\ 10x + 5y = 10 \end{cases} \Rightarrow x = 0, y = 2$



d)  $\begin{cases} 2x + 3y = 18 \\ 6x - 5y = 26 \end{cases} \Rightarrow x = 6, y = 2$

