

EJERCICIO MIB5332:

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$$\begin{cases} 2^x + 3^y = 7 \\ 2^{x+1} - 3^{y+1} = -1 \end{cases}$$

$$\begin{cases} 2^x + 3^y = 7 \\ 2^x \cdot 2 - 3^y \cdot 3 = -1 \end{cases} \quad \begin{cases} \text{Cambio de variables} \\ 2^x = a; 3^y = b \end{cases}$$

$$\begin{cases} a + b = 7 \\ 2a - 3b = -1 \end{cases} \quad \begin{matrix} \text{(-x3)} \\ \text{(+)} \end{matrix} \quad \begin{cases} 3a + 3b = 21 \\ 2a - 3b = -1 \end{cases}$$

$$\begin{matrix} \downarrow \\ \text{(-2)} \\ \text{(+)} \end{matrix} \quad \begin{cases} -2a - 2b = -14 \\ 2a - 3b = -1 \end{cases}$$

$$5a = 20$$

$$a = \frac{20}{5} = 4$$

$$-5b = -15$$

$$b = \frac{-15}{-5} = 3$$

$$\begin{aligned} a = 4 &\Rightarrow 2^x = 4 \Rightarrow 2^x = 2^2 \Rightarrow x = 2 \\ b = 3 &\Rightarrow 3^y = 3 \Rightarrow 3^y = 3^1 \Rightarrow y = 1 \end{aligned}$$