ECUACIONES EXPONENCIALES

$2^{2x-1} = 4$

$2^{2x-1} = 2^2 \qquad 2x - 1 = 2 \qquad x = \frac{3}{2}$

$\sqrt[2x-1]{3^{x-3}} = \sqrt{27}$

$3^{\frac{x-3}{2x-1}} = 3^{\frac{3}{2}} \qquad \frac{x-3}{2x-1} = \frac{3}{2} \qquad x = -\frac{3}{4}$

$2^{x+1} + 2^x + 2^{x-1} = 28$

$2^x \cdot 2 + 2^x + \frac{2^x}{2} = 28$

$2^x \left(2 + 1 + \frac{1}{2}\right) = 28$

$2^x \cdot \frac{7}{2} = 28 \qquad 2^x = 2^3 \qquad x = 3$

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

$2 - \frac{1}{3^x} + 3 \cdot 3^x = 0$

$3^x = t$

$2 - \frac{1}{t} + 3 \cdot t = 0$

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

$t_1 = -1 \qquad 3^x = -1 \qquad$ sin solución

$t_2 = \frac{1}{3} \qquad 3^x = \frac{1}{3} \qquad x = -1$

$$2^{1-x^2} = \frac{1}{8}$$

$2^{1-x^2} = 2^{-3}$ $\quad 1 - x^2 = -3; \quad x^2 = 4$ $\quad x = \pm 2$

$$\sqrt[3]{8^x} = 65536$$

$\left(2^3\right)^{\frac{x}{3}} = 2^{16}$ $\quad x = 16$

$$4^{x^2-6x} = 16384$$

$2^{2\left(x^2-6x\right)} = 2^{14}$ $\quad 2x^2 - 12x = 14$ $\quad x^2 - 6x - 7 = 0$

$x_1 = 7$ $\quad x_2 = -1$

$$4^{\sqrt{x+1}} - 2^{\sqrt{x+1}+2} = 0$$

$2^{2\sqrt{x+1}} = 2^{\sqrt{x+1}+2}$ $\quad 2\sqrt{x+1} = \sqrt{x+1} + 2$

$x = 3$

$$3^{x^2-1} = 134$$

$\log 3^{\left(x^2-1\right)} = \log 134$

$\left(x^2 - 1\right)\log 3 = \log 134$

$x^2 - 1 = \dfrac{\log 134}{\log 3} = 4.4582$ $\quad x^2 = 5.4582$ $\quad x = \pm 2.336$

$$3^{1-x} - 3^x = 2$$

$\dfrac{3}{3^x} - 3^x = 2$ $\quad 3^x = t$

$t^2 + 2t - 3 = 0$ $\quad t_1 = 1$ $\quad 3^x = 1$ $\quad x = 0$

$t_2 = -3$ $\quad 3^x = -3$ $\quad \nexists$

$e^x - 5e^{-x} + 4e^{-3x} = 0$

$e^x - \frac{5}{e^x} + \frac{4}{e^{3x}} = 0 \qquad e^{4x} - 5e^{2x} + 4 = 0 \qquad e^{2x} = t$

$t^2 - 5t + 4 = 0 \quad \begin{matrix} t_1 = 1 & e^{2x} = 1 & & x = 0 \\ t_2 = 4 & e^{2x} = 4 & \ln e^{2x} = \ln 4 & x = \frac{\ln 4}{2} \end{matrix}$

$4^{x-1} + 2^{x+2} = 48$

$2^{2x-2} + 2^{x+2} = 48 \qquad \frac{2^{2x}}{4} + 4 \cdot 2^x - 48 = 0 \qquad t = 2^x$

$t^2 + 16t - 192 = 0 \qquad \begin{cases} t = 8 \\ t = -24 \end{cases}$

$8 = 2^x \qquad x = 3$

SISTEMAS DE ECUACIONES EXPONENCIALES

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

$\begin{cases} 3^x - 2^y = 1 \\ \frac{3^x}{3} - \frac{2^y}{4} = 1 \end{cases} \qquad 3^x = u \qquad 2^y = v$

$\begin{cases} u - 2v = 1 \\ 4u - 3v = 12 \end{cases} \qquad u = 9 \quad v = 8$

$3^x = 9 \qquad x = 2 \qquad 2^y = 8 \qquad y = 3$

$\begin{cases} 5^x \cdot 25^y = 5^7 \\ 2^{x-1} \cdot 2^{y+2} = 64 \end{cases} \qquad \begin{cases} 5^x \cdot 5^{2y} = 5^7 \\ 2^{x-1} \cdot 2^{y+2} = 2^6 \end{cases} \qquad \begin{cases} 5^{x+2y} = 5^7 \\ 2^{x-1+y+2} = 2^6 \end{cases}$

$\begin{cases} x + 2y = 7 \\ x - 1 + y + 2 = 6 \end{cases} \qquad x = 3 \qquad y = 2$