

ECUACIONES e INECUACIONES.

Halla el valor de x en las siguientes expresiones:

<p>a) $\log_x 125 = 3$</p> <p>b) $\log_x \frac{1}{9} = -2$</p> <p>c) $\log x = \log 17 + \log 13$</p> <p>d) $\log x = \log 36 - \log 9$</p> <p>e) $\log x = 3 \log 5$</p> <p>f) $\log x = 4 \log 2 - \frac{1}{2} \log 25$</p>	<p>g) $\log x^2 = -2$</p> <p>h) $\log_x 0,04 = -2$</p> <p>i) $\log_x 2 = \frac{1}{2}$</p> <p>j) $\frac{1}{2} \log(2x + 3) = \log x$</p> <p>k) $\log(x - 1) + \log(x + 6) = \log(3x + 2)$</p>
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Resuelve las siguientes ecuaciones y sistemas:

<p>1. $0.07^x = 0.03$</p> <p>2. $\log 1250 - 2 = 2 - \log(2^{2-x})^{2+x}$</p> <p>3. $2 \log^2 x - 9 \log x + 10 = 0$</p> <p>4. $\frac{3x}{2x+x^2} - \frac{1}{x} + \frac{4}{x+2} = 0$</p> <p>5. $\frac{x - \sqrt{6}}{\sqrt{3+x}} = \frac{\sqrt{3-x}}{2x^2(x + \sqrt{6})}$</p> <p>6. $2(2x-1)^{1/2} + (2x+1)^{1/2} = (2x-1)^{-1/2}$</p> <p>7. $\begin{cases} (x-y)^{\log(x+y)} = 100 \\ x^2 - y^2 = 1000 \end{cases}$</p> <p>8. $\frac{21}{\sqrt{6x+1}} - \sqrt{6x+1} = 2\sqrt{3x}$</p> <p>9. $\log(x+1) + 2 \log 2 = \log(4x-1) - \log(x-1)$</p> <p>10. $\begin{cases} x^3 - y^2 = 0 \\ y \log x - x \log y = 0 \end{cases}$</p>	<p>11. $x+1\sqrt{2^{x-5}} = \frac{1}{4} 5-x\sqrt{8^{x+5}}$</p> <p>12. $2 \log x + 3 \ln x = 5$</p> <p>13. $\begin{cases} \log \sqrt[3]{(x+y)} = \log 2 \\ \log(x+y) + x \log 3 = 7 \log 6 \end{cases}$</p> <p>14. $\log x + \log_{100} x = \frac{1}{2}$</p> <p>15. $\begin{cases} \log_x(y-1) = 3 \\ \log_y(5-x) = \frac{1}{2} \end{cases}$</p> <p>16. $3^x + 3^{2-x} = 10$</p> <p>17. $5^{2x+1} - 5^{x+2} = 2500$</p> <p>18. $\begin{cases} 2^x + 5^y = 9 \\ 2^{x-1} + 5^{y+1} = 9 \end{cases}$</p> <p>19. $2^{1/2} + 2^{3/2} x^{-1/2} = (2x)^{1/2}$</p> <p>20. $7^{2x+2} - 9 \cdot 7^{x+1} + 14 = 0$</p>
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Resuelve las siguientes inecuaciones:

<p>21. $x^3 - x^2 - 4x + 4 < 0$</p> <p>23. $\frac{x^2+4}{x^2-4} - \frac{1}{x-2} > \frac{x+3}{x+2}$</p>	<p>22. $\frac{9-x^2}{x^2-x-1} \geq 0$</p> <p>24. $\log_3 x > \log_9(5x-4)$</p>
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Resuelve las siguientes ecuaciones y sistemas:

$2^{4x} - 2^{2x} - 12 = 0$	$\log 2 + \log(x - 3) = \log \sqrt{2x}$	$3 \log x - \log(2x^2 + x - 2) = 0$
$4 \log x - \log\left(x^2 - \frac{4}{5}\right) = \log 5$	$3^{x+1} - 2 \cdot 3^x - 2 \cdot 3^{x-1} = 81$	$\log(3x + 5) - \log(2x + 1) = 1 - \log 5$
$\begin{cases} \log x + 5 \log y = 7 \\ 5 \log x - \log y = 4 \end{cases}$	$\begin{cases} \log_x(4 - y) = \frac{1}{2} \\ \log_y(4 + x) = 2 \end{cases}$	$\begin{cases} \log(x + y) - \log(x - y) = \log 5 \\ \frac{2^x}{2^y} = 2 \end{cases}$
$\begin{cases} 2^x + 2^y = 10 \\ 2^{x-y} = 4 \end{cases}$	$x = \log_2(3^{\log_5 2})$	$2 \log x = 1 + \log(x - 0,9)$
$\begin{cases} 5^x = 5 \cdot 25^{y-1} \\ 4^x = 4 \cdot 2^{2y} \end{cases}$	$(\log_5 x)^2 - \log_5 x^2 = -1$	$1 + 2 + 2^2 + 2^3 + \dots + 2^x = 255$
$\log_x \sqrt[3]{7} = \frac{2}{3}$	$x = \log_2 3 \cdot \log_3 2$	$x = \log_2(100^{\log 2})$

Resuelve:

$\frac{5}{x^2 - x - 6} = \frac{3}{x^2 - 4} + \frac{3}{2x^2 - 10x + 12}$	$\frac{x^2 - 32}{4} + \frac{28}{x^2 - 9} = 0$	$\frac{(2x + 3) \cdot (2x - 1)}{4x^2 + 1} \leq 0$
$x^3 - x^2 + x + 2 \geq 0$	$\frac{3x^2 - 2x}{3x + 1} + \frac{1}{2x} < x - 1$	$\frac{x - 1}{3} > \frac{2}{x}$
$\frac{ 4 - 3x }{2} < 3$	$\left 2 + \frac{x}{2}\right > 3$	$(4x - 1) \cdot (2x + 2) \geq 12$