

Departamento de Matemáticas $1^{\underline{0}}$ Bachillerato



9 - Ecuaciones exponenciales y logarítmicas

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1.	p027e04 -	Resuelve	las	signientes	ecuaciones	exponencial	es:
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(a) $10^{3-x} = 1$

Sol: [3]

 $(k) \quad 10^x \cdot 10^{-2x+7} = 100$

Sol: [5]

(b) $5^{x+3} = 125$

Sol: [0]

(1) $(3^x)^2 \cdot 3^x = 9^3$

Sol: [2]

(c) $5^{1-x^2} = \frac{1}{125}$

Sol: [-2, 2]

(m) $\sqrt{2 \cdot \sqrt{2 \cdot \sqrt{2}}} = 2^x$

Sol: $\left\lceil \frac{7}{8} \right\rceil$

(d) $5^{x^2-5x+6} = 1$

Sol: [2, 3]

(n) $2^{x^2-5x} = 64^{-1}$

Sol: [2, 3]

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

Sol: [4]

 (\tilde{n}) $\sqrt{\sqrt{3} + \sqrt{3} + \sqrt{3}} = 3^{x+2}$

Sol: $\left[-\frac{5}{4}\right]$

(f) $2^{x+3} = 4^{-x}$

Sol: [-1]

(o) $\sqrt[x]{216} = 6$

 $0) \quad \sqrt{210} = 0$

(g) $9^{x-1} = 3^{x+1}$

Sol: [3]

Sol: [3]

(h) $4^{4x+3} = 2^{-x}$

Sol: $\left[-\frac{2}{3} \right]$

(p) $4^x - 2^x = 2$

Sol: [1]

(i) $8^{x-1} = 4^{3x+1}$

0 -4

Sol: $\left[-\frac{5}{3} \right]$

(q) $5^x - 30 \cdot 5^x + 145 = 0$

Sol: [1]

(j) $5^{-x} = 0.04$

Sol: [2]

(r) $2^{x-1} + 2^x + 2^{x+1} = 7$

Sol: [1]

2. p028e05 - Resuelve las siguientes ecuaciones exponenciales:

(a)
$$3^{x+1} + 3^x + 3^{x-1} = 117$$

Sol: [3]

(b)
$$3^x + 3^{x-1} + 3^{x-2} + 3^{x-3} + 3^{x-4} = 363$$

Sol: [5]

(c)
$$2^{3x} - \frac{3}{2^{3x+2}} + 1 = 0$$

Sol: $\left[-\frac{1}{3} \right]$

(d)
$$3^{x-1} + 3^{2-x} = 4$$

Sol: [1, 2]

(e)
$$2^{x+1} + 4^x = 80$$

Sol: [3]

(f)
$$2^{2x} - 3 \cdot 2^{x+1} + 8 = 0$$

Sol: [1, 2]

(g)
$$3^{2x-3} + 1 = 4 \cdot 3^{x-2}$$

Sol: [1, 2]

(h)
$$2^{2x} - 10 \cdot 2^x + 16 = 0$$

Sol: [1, 3]

(i)
$$16^x - 4^x = 240$$

Sol: [2]

(i)
$$9^x - 6 \cdot 3^{x+1} + 81 = 0$$

Sol: [2]

(k)
$$3^{x+2} + 9^{x+1} = 810$$

Sol: [2]

(l)
$$5^{x-1} = 2 + \frac{3}{5^{x-2}}$$

Sol: [2]

(m)
$$3^{x+1} + 3^{x-2} = \frac{15}{3^{x-1}} + \frac{247}{3^{x-2}}$$

Sol: [3]

(n)
$$4^{2x} + 16 \cdot 4^{-2x} - 10 = 0$$

Sol: $\begin{bmatrix} \frac{1}{4}, & \frac{3}{4} \end{bmatrix}$

3. p028e06 - Resuelve los siguientes sistemas:

(a)
$$\begin{cases} 3^x = 3^y \\ 4^x \cdot 4^y = 256 \end{cases}$$

Sol: $[\{x:2, y:2\}]$

(b)
$$\begin{cases} 2^{x+2y} = 32\\ 2^{3x-5y} = 16 \end{cases}$$

Sol: $[\{x:3, y:1\}]$

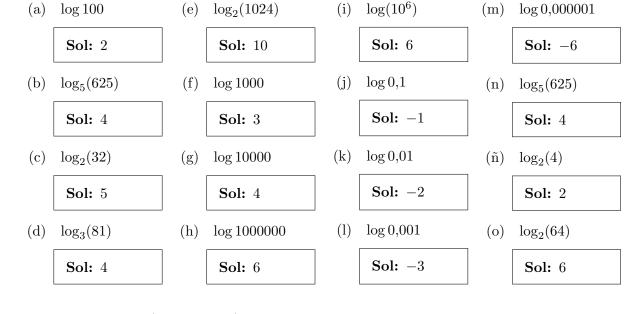
(c)
$$\begin{cases} 5^x = 5^y \cdot 625 \\ 2^x \cdot 2^y = 256 \end{cases}$$

Sol: $[\{x:6, y:2\}]$

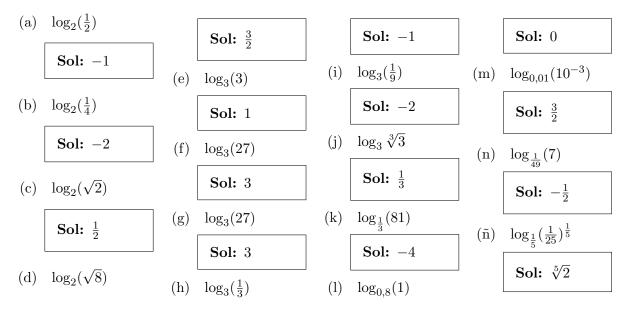
(d)
$$\begin{cases} 2^x + 2^y = 24\\ 2^{x+y} = 128 \end{cases}$$

Sol: $[\{x:3, y:4\}, \{x:4, y:3\}]$

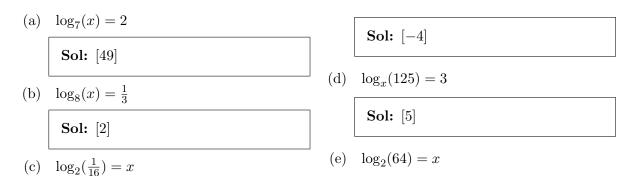
4. p028e07 - Calcula:



5. p028e07b - Calcula (continuación):



6. p028e08 - Averigua el valor de x en los siguientes casos:



Sol: [6]

(f) $\log_x(9) = 2$

Sol: [3]

(g) $\log_2(x) = -3$

Sol: $\left[\frac{1}{8}\right]$

 $\log_x(5) + 2$

Sol: $\left\lceil \frac{\sqrt{5}}{5} \right\rceil$

 $\log_{0,008}(625) = 2x$

Sol: $\left[-\frac{2}{3} \right]$

7. p
028e9 - Sabiendo que log 2 = 0,301030, calcula

(a) $\log(16)$

Sol: 1,20411998

(e) $\log(\frac{1}{16})$

Sol: -1,20411998

(i) $\log(\sqrt[4]{\frac{1}{0.04}})$

Sol: 0,349485002

(b) $\log(64)$

Sol: 1,80617997

(f) $\log(5)$

Sol: 0,698970004

(j) $\log \sqrt[3]{0,002}$

Sol: -0.899656668

(c) $\log(1024)$

Sol: 3,01029996

 $(g) \log(25)$

Sol: 1,39794001

(k) $\log(0.025)$

Sol: -1,60205999

 $\log(\frac{1}{2})$ (d)

Sol: -0.301029996

 $\log(0.0016)$

Sol: -2,79588002

Sol: -0.752574989