

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



9 - Ecuaciones exponenciales y logarítmicas

| - | 00= 04 | T 1 | 1 | | | | |
|----|-----------|-----------|-----|------------|---|-------------------|-----|
| 1. | p027e04 - | Resuelve | las | signientes | ecuaciones | exponencial | es: |
| | PO 00 1 | 100000101 | 100 | 22000 | CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC | OIL D OIL OIL OIL | |

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

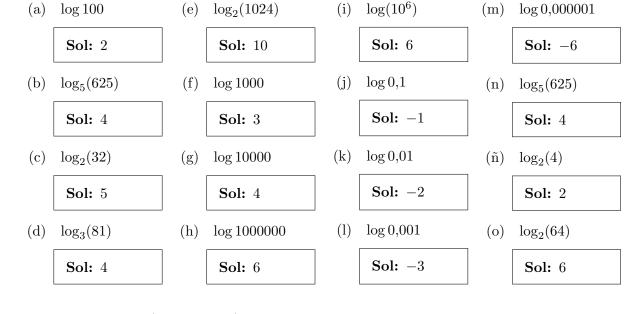
(c)
$$\begin{cases} 5^x = 5^y \cdot 625 \\ 2^x \cdot 2^y = 256 \end{cases}$$

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

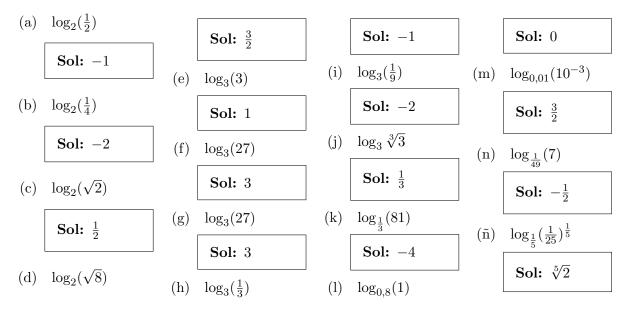
(d)
$$\begin{cases} 2^x + 2^y = 24\\ 2^{x+y} = 128 \end{cases}$$

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

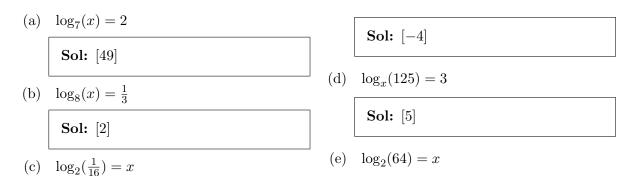
4. p028e07 - Calcula:



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) $\log_{2}(x) = -3$ (h) $\log_{x}(5) + 2$ Sol: $\left[\frac{\sqrt{5}}{5}\right]$ (i) $\log_{0,008}(625) = 2x$ Sol: $\left[-\frac{2}{3}\right]$

7. p028e9 - Sabiendo que log 2 = 0.301030, calcula

(a) $\log(16)$ **Sol:** -0,30102\\$99566\\$9**\$50l:** 1,3979400\086720\4 **Sol:** -0,89965\\$668112007 **Sol:** 1,20411998265592 (e) $\log(\frac{1}{16})$ (h) $\log(0,0016)$ $\log(0.025)$ (k) (b) $\log(64)$ **Sol:** -1,2041199826559**Sol:** -2,7958800173440**7 Sol:** 1,80617997398389 **Sol:** -1,60205999132796 $\log(\sqrt[4]{\frac{1}{0,04}})$ (f) (i) $\log(5)$ (c) $\log(1024)$ **Sol:** 0,6989700 043360 19**Sol:** $0,3494850 02168009 ^{10} (\sqrt[4]{\frac{1}{1024}})$ **Sol:** 3,01029995663981 **Sol:** -0.752574989159953 $\log(25)$ (j) $\log \sqrt[3]{0,002}$ (g) (d) $\log(\frac{1}{2})$