

ECUACIONES EXPONENCIALES

Determina el valor de x en las siguientes ecuaciones exponenciales:

1. $a^x - a^7 = 0$
2. $a^{2x} = a^8$
3. $a^{x+3} - a^8 = 0$
4. $a^{x-5} = a$
5. $b^{7-x} = b^3$
6. $b^{3-x} = b^6$
7. $3^x = 1$
8. $2^{x-1} = 1$
9. $4^{3-x} = 4$
10. $p^{5-x} = p$
11. $q^{x+1} = q$
12. $m^{8x-5} = m^{5x+7}$
13. $c^x \cdot c^{x-3} = c^9$
14. $m^{3x} = m^{18}$
15. $a^{5x-3} = a^{14+5x} \cdot a^{8x+7}$
16. $b^{x-1} \cdot b^{x+1} = b^8$
17. $(m^5)^x = m^{15}$
18. $(a^{x-1})^{x-7} = (a^{x+1})^{x+3}$
19. $(a^{5x+1})^5 = (a^{7x-1})^7 \cdot (a^{x-6})^9$
20. $4^x = 64$
21. $5^x = 125$
22. $9^x = 81$
23. $3^{-x} = 9$
24. $6^{-x} = 1$
25. $6^x = 1/36$
26. $5^x = 1/125$
27. $2^{x+1} = 0,25$
28. $2^{x-3} = 1/8$
29. $\left(\frac{1}{4}\right)^x = 8$
30. $\left(\frac{1}{7}\right)^x = 343$
31. $\left(\frac{1}{4}\right)^x = 32$
32. $64^{\frac{1}{x}} = 32$
33. $16^{\frac{2}{x}} = 8$
34. $16^{\frac{2}{x}} = 2$
35. $27^{\frac{2}{x}} = 9$
36. $x^{x-5} = \left(\frac{1}{8}\right)^{8-x}$
37. $\sqrt[3]{a^{5x-3}} = a^{x+5}$
38. $\sqrt[4]{a^{13x+5}} = a^{2x-5}$
39. $\sqrt[3x]{a^{3x+5}} = \sqrt[6]{a^7}$
40. $\sqrt[3]{b^{2x+3}} = \sqrt[4]{b^{x+5}}$
41. $\sqrt[4]{a^{x-5}} = \sqrt[6]{a^{7x-3}} : \sqrt[6]{a^{43}}$

42. $\left(\frac{3}{4}\right)^{2x} \cdot \left(\frac{8}{3}\right)^{2x} = 2^{x-3}$
43. $\left(\frac{1}{3}\right)^{2x-3} = 3^{1-x}$
44. $(25^{x-3})^6 : (125^{2-3x})^2 = 625$
45. $\left(\frac{1}{4}\right)^{3x+1} \cdot 2^{x-4} = \frac{1}{8}$
46. $3^{x^2-5} = 81$
47. $(2^x)^x = 16$
48. $(3^x)^{x-4} = \frac{1}{27}$
49. $(5^x)^{x-2} = 25^x$
50. $4^x = \sqrt{32}$
51. $\sqrt[3]{2^x} = \frac{1}{16}$
52. $10^{2x-1} - 10^x = 0$
53. $6^{3\sqrt{x}-2} - 36^{3\sqrt{x}-2} = 0$
54. $(0,25)^{x+1} = (0,125)^{x-1}$

Respuestas:

1. 7	20. 3	39. 10
2. 4	21. 3	40. 3/5
3. 5	22. 2	41. 7
4. 6	23. -2	42. -3
5. 4	24. 0	43. 2
6. -3	25. -2	44. 26/15
7. 0	26. -3	45. -3/5
8. 1	27. -3	46. 3
9. 2	28. 0	47. 2
10. 4	29. -3/2	48. 3 y 1
11. 0	30. -3	49. 0 y 4
12. 4	31. -5/2	50. 5/4
13. 6	32. 6/5	51. -12
14. 6	33. 8/3	52. 1
15. -3	34. 8	53. 4/9
16. 4	35. 3	54. 5
17. 3	36. 14	
18. 1/3	37. 9	
19. 2	38. -5	