



## GUÍA N°3: ecuaciones exponenciales 2° MEDIO

NOMBRE: \_\_\_\_\_ FECHA: \_\_\_\_\_

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.  $c^x \cdot c^{-3} = c^9$
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.  $64^x = 32$
33.  $16^x = 8$
34.  $16^x = 2$
35.  $27^x = 9$
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.  $\sqrt[3]{a^{3x+5}} = \sqrt[6]{a^7}$
40.  $\sqrt[3]{b^{2x+3}} = \sqrt[4]{b^{x+5}}$
41.  $\sqrt[4]{a^{x-5}} = \sqrt[6]{a^{7x-3}} \cdot \sqrt[6]{a^{43}}$
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.  $4^x = \sqrt{32}$
49.  $\sqrt[3]{2^x} = \frac{1}{16}$
50.  $10^{2x-1} - 10^x = 0$
51.  $6^{3\sqrt{x}-2} - 36^{3\sqrt{x}-2} = 0$
52.  $(0,25)^{x+1} = (0,125)^{x-1}$

### 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. 5/4   |
| 11. 0   | 30. -3   | 49. -12   |
| 12. 4   | 31. -5/2 | 50. 1     |
| 13. 6   | 32. 6/5  | 51. 4/9   |
| 14. 6   | 33. 8/3  | 52. 5     |
| 15. -3  | 34. 8    |           |
| 16. 4   | 35. 3    |           |
| 17. 3   | 36. 14   |           |
| 18. 1/3 | 37. 9    |           |
| 19. 2   | 38. -5   |           |