



Exercícios: Equação exponencial

Resolva as seguintes equações exponenciais:

1. $2^x = 128$

2. $3^x = 243$

3. $2^x = \frac{1}{16}$

4. $\left(\frac{1}{5}\right)^x = 125$

5. $(\sqrt[3]{2})^x = 8$

6. $(\sqrt[4]{3})^x = \sqrt[3]{9}$

7. $9^x = 27$

8. $4^x = \frac{1}{8}$

9. $\left(\frac{1}{125}\right)^x = 25$

10. $(\sqrt[5]{4})^x = \frac{1}{\sqrt{8}}$

11. $100^x = 0,001$

12. $125^x = 0,04$

13. $2^{3x-1} = 32$

14. $11^{2x+5} = 1$

15. $2^{x^2-x-16} = 16$

16. $7^{3x+4} = 49^{2x-3}$

17. $(2^x)^{x+4} = 32$

18. $(9^{x+1})^{x-1} = 3^{x^2+x+4}$

19. $2^{3x-1} \cdot 4^{2x+3} = 8^{3-x}$

20. $(3^{2x-7})^3 \div 9^{x+1} = (3^{3x-1})^4$

21. $3^{x-1} - 3^x + 3^{x+1} + 3^{x+2} = 306$

22. $5^{x-2} - 5^x + 5^{x+1} = 505$

23. $2^{3x} + 2^{3x+1} + 2^{3x+2} + 2^{3x+3} = 240$

GABARITO:

1. $S = \{7\}$
2. $S = \{5\}$
3. $S = \{-4\}$
4. $S = \{-3\}$
5. $S = \{9\}$
6. $S = \left\{\frac{8}{3}\right\}$
7. $S = \left\{\frac{3}{2}\right\}$

8. $S = \left\{-\frac{3}{2}\right\}$
9. $S = \left\{\frac{-2}{3}\right\}$
10. $S = \left\{\frac{-15}{4}\right\}$
11. $S = \left\{-\frac{3}{2}\right\}$
12. $S = \left\{-\frac{2}{3}\right\}$
13. $S = \{2\}$
14. $S = \left\{-\frac{5}{2}\right\}$
15. $S = \{5, -4\}$

16. $S = \{10\}$
17. $S = \{-5, 1\}$
18. $S = \{3, -2\}$
19. $S = \left\{\frac{2}{5}\right\}$
20. $S = \left\{-\frac{19}{8}\right\}$
21. $S = \{3\}$
22. $S = \{3\}$
23. $S = \left\{\frac{4}{3}\right\}$