



Exercícios: Equações logarítmicas

Resolva as equações:

1.

$$\log_4(3x + 2) = \log_4(2x + 5)$$

2.

$$\log_3(5x - 6) = \log_3(3x - 5)$$

3.

$$\log_{\frac{1}{3}}(3x^2 - 4x - 17) = \log_{\frac{1}{3}}(2x^2 - 5x + 3)$$

4.

$$\log_5(4x - 3) = 1$$

5.

$$\log_{\frac{1}{2}}(3 + 5x) = 0$$

6.

$$\log_4(2x^2 + 5x + 4) = 2$$

7.

$$\log_{\frac{1}{3}}(2x^2 - 9x + 4) = -2$$

8.

$$\log_3(\log_2 x) = 1$$

9.

$$\log_{\frac{1}{2}}[\log_3(\log_4 x)] = 0$$

10.

$$x^{\log_x(x+3)} = 7$$

11. $x^{\log_x(x-5)^2} = 9$

12. $(\log_4 x)^2 - 2 \cdot \log_4 x - 3 = 0$

13. $6 \cdot (\log_2 x)^2 - 7 \cdot \log_2 x + 2 = 0$

14. $\log_x(4 - 3x) = 2$

15. $\log_x(4x - 3) = \log_x(2x + 1)$

16. $\log_x(5x + 2) = \log_x(3x + 4)$

17. $\log_2(x + 4) + \log_2(x - 3) = \log_2 18$

18. $\log_{\frac{1}{2}}(x + 1) + \log_{\frac{1}{2}}(x - 5) = \log_{\frac{1}{2}}(2x - 3)$

GABARITO:

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| 1. $S = \{3\}$ | 6. $S = \left\{-4, \frac{3}{2}\right\}$ | 12. $S = \left\{64, \frac{1}{4}\right\}$ |
| 2. $S = \emptyset$ | 7. $S = \left\{5, -\frac{1}{2}\right\}$ | 13. $S = \{\sqrt{2}, \sqrt[3]{4}\}$ |
| 3. $S = \{4, -5\}$ | 8. $S = \{8\}$ | 14. $S = \emptyset$ |
| 4. $S = \{2\}$ | 9. $S = \{64\}$ | 15. $S = \{2\}$ |
| 5. $S = \left\{-\frac{2}{5}\right\}$ | 10. $S = \{4\}$ | 16. $S = \emptyset$ |
| | 11. $S = \{8, 2\}$ | 17. $S = \{5\}$ |
| | | 18. $S = \{3 + \sqrt{11}\}$ |