


AULA 07

 Nas questões de 3 a 12, resolva cada equação em \mathbb{R} .

1. $\log_5(3x+2) = \log_5 2 + \log_5 x$
2. $\log_x(6x-5) = 2$
3. $\log_2(\ln x) = 1$
4. $\frac{2 + \log_3 x}{\log_3 x} + \frac{\log_3 x}{1 + \log_3 x} = 2$
5. $x^{\log_x(x-2)} = 9$
6. $\log_3^2 x - 2\log_3 x - 3 = 0$

AULA 08

7. $\ln(x+1) + \ln(x-1) = \ln 8$
8. $9x^{\log_3 x} = x^3$
9. $\log_2 x + \log_x 2 = 2$
10. $(\log_x 2) \left(\log_{\left(\frac{x}{16}\right)} 2 \right) = \log_{\left(\frac{x}{64}\right)} 2$

AULA 09

 Nas questões de 1 a 06, resolva cada inequação em \mathbb{R} .

1. $\log_{\frac{1}{3}}(x^2 - 7x + 15) > \text{colog}_{\frac{1}{3}}\left(\frac{1}{243}\right)$
2. $\ln(x^2 - 4x) > \ln 5$
3. $1 \leq \log_{0,2}(3x-1) < 2$
4. $\log_2(x-3) + \log_2(x-2) \leq 1$
5. $\log_3^2 x - 3\log_3 x + 2 > 0$
6. $\log_2 \left[\log_{\frac{1}{2}}(\log_3 x) \right] > 0$
5. $\log_3^2 x - 3\log_3 x + 2 > 0$
6. $\log_2 \left[\log_{\frac{1}{2}}(\log_3 x) \right] > 0$

QUESTÕES EXTRAS PARA ESTUDO INDIVIDUAL

1. Esboce os gráficos das funções.

- a) $y = \log_2 x$
- b) $y = 1 + \log_2 x$
- c) $y = \log_2(x-1)$
- d) $y = |\log_2 x|$
- e) $y = \log_2|x|$

 Nas questões de 2 a 18, resolva cada equação em \mathbb{R} .

2. $\log_4 3 + \log_4 x = \log_4 6$
3. $6\ln x = 3\ln 4$
4. $1 + \log x = \log 30$
5. $(x^2 - 8x + 18)\log 5 = \log 125$

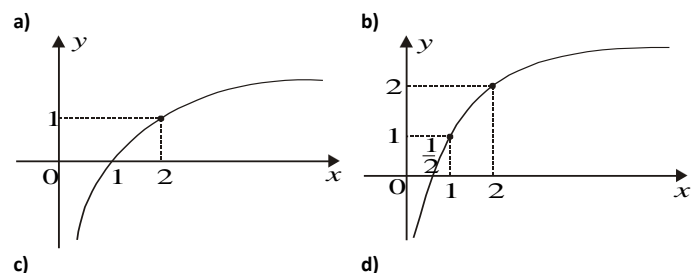
6. $\log(5x+20) + \log(2x-10) = 2 + \log(2x-13)$
7. $\ln(\log_2(\log_5 x)) = 0$
8. $\frac{1}{5 - \log x} + \frac{2}{1 + \log x} = 1$
9. $\frac{\log_3 x}{1 + \log_3 x} + \frac{\log_3 x + 2}{\log_3 x + 3} = \frac{5}{4}$
10. $\log_x(3x^2 - 13x + 15) = 2$
11. $\log_x(4 - 3x) = 2$
12. $\log_x(5x+2) = \log_x(3x+4)$
13. $\log_3[\log_2(3x^2 - 5x + 2)] = \log_3 2$
14. $x^{\log_x(x+3)} = 7$
15. $x^{\log_x(2x-1)} = 1$
16. $\log^2 x - \log x = 6$
17. $2 + 2\log_4^2 x = 5\log_4 x$
18. $x^{\log x} = 100x$

 Nas questões de 1 a 19, resolva cada inequação em \mathbb{R} .

19. $\log_8(5x-2) < \log_8 4$
20. $\log_{0,5}(x^2 - 8x + 16) > \log_{0,5} 4$
21. $\ln(x-3) + \ln(x-2) < \ln 2$
22. $\log_{0,5}(x^2 + 2x - 8) > \log_{0,5}(2x^2 + 8x)$
23. $\log(x^2 + 2x - 8) > \log(2x^2 + 8x)$
24. $\log_{0,3}(x-2) \geq (\log_2 5)(\log_5 6)(\log_6 7)(\log_7 8) - 1$
25. $\log_{0,1}(x^2 + 1) < \log_{0,1}(2x - 5)$
26. $\log_5(x^2 - x) > \log_{0,2}\left(\frac{1}{6}\right)$
27. $3\log_3^2 x + 5\log_3 x - 2 \leq 0$
28. $\log_{\frac{1}{2}}^2 x - 3\log_{\frac{1}{2}} x - 4 > 0$
29. $\log_{\frac{1}{3}}(\log_2 x) < 0$
30. $\log_2[\log_3(\log_5 x)] > 0$

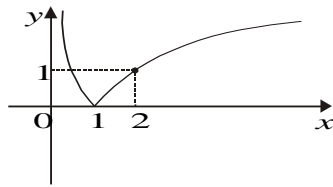
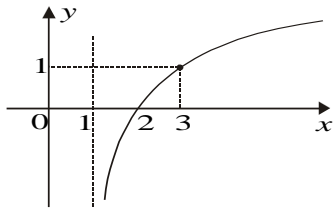
GABARITO

1.

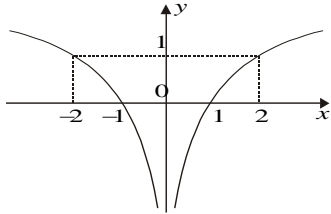


c)

d)



e)



2. $S = \{2\}$

3. $S = \{2\}$

4. $S = \{3\}$

5. $S = \{3; 5\}$

6. $S = \{10; 11\}$

7. $S = \{25\}$

8. $S = \{100; 1000\}$

9. $S = \left\{3; 3^{-\frac{7}{3}}\right\}$

10. $S = \left\{5; \frac{3}{2}\right\}$

11. $S = \emptyset$

12. $S = \emptyset$

13. $S = \left\{2; -\frac{1}{3}\right\}$

14. $S = \{4\}$

15. $S = \emptyset$

16. $S = \left\{1000; \frac{1}{100}\right\}$

17. $S = \{2; 16\}$

18. $S = \left\{100; \frac{1}{10}\right\}$

19. $S = \left\{x \in \mathbb{R} / \frac{2}{5} < x < \frac{6}{5}\right\}$

20. $S = \{x \in \mathbb{R} / 2 < x < 6 \text{ e } x \neq 4\}$

21. $S = \{x \in \mathbb{R} / 3 < x < 4\}$

22. $S = \{x \in \mathbb{R} / x < -4 \text{ ou } x > 2\}$

23. $S = \emptyset$

24. $S = \{x \in \mathbb{R} / 2 < x \leq 2,09\}$

25. $S = \left\{x \in \mathbb{R} / x > \frac{5}{2}\right\}$

26. $S = \{x \in \mathbb{R} / x < -2 \text{ ou } x > 3\}$

27. $S = \left\{x \in \mathbb{R} / \frac{1}{9} \leq x < \sqrt[3]{3}\right\}$

28. $S = \left\{x \in \mathbb{R} / 0 < x < \frac{1}{16} \text{ ou } x > 2\right\}$

29. $S = \{x \in \mathbb{R} / x > 2\}$

30. $S = \{x \in \mathbb{R} / x > 125\}$