

CURSO MENTOR

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Professor: Leonardo Santos

Tema: Equações Fracionárias I

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Q1. Resolva as equações a seguir, escrevendo o conjunto universo e o conjunto solução.

$$1. \frac{10}{x} + \frac{3}{4} = \frac{1}{2}$$

$$2. \frac{3a+2}{2a+1} + \frac{5}{4a^2-1} = \frac{3a+1}{2a-1}$$

$$3. \frac{9x-48}{x} = 5$$

$$4. \frac{2}{a} + \frac{9a-8}{5a} = \frac{5a-6}{a}$$

$$5. \frac{x}{x-1} - \frac{3x}{x+2} = -2$$

$$6. \frac{15-x}{x} = \frac{1}{2}$$

$$7. \frac{x-1}{x-3} = \frac{x-4}{x-5}$$

$$8. \frac{x}{4} - \frac{2x-1}{3} = \frac{x+1}{6}$$

$$9. \frac{1}{x-1} + \frac{1}{x+1} = \frac{2}{x^2-1}$$

$$10. \frac{3x-8}{x-2} - \frac{x-2}{x+2} = \frac{2x^2-6x+44}{x^2-4}$$

$$11. \frac{1}{4} - \frac{6-x}{3x-3} = \frac{3}{x-1}$$

$$12. \frac{2}{2x-2} + \frac{3x+4}{x^2-x} = -\frac{3}{4}$$

$$13. \frac{x}{x-1} = 1 - \frac{2}{x}$$

$$14. \frac{x+3}{2} + \frac{x+4}{3} + \frac{x+5}{4} = 16$$

$$15. \frac{4}{x+3} - \frac{2}{x+1} = \frac{5}{2x+6} - \frac{2}{x+3}$$

$$16. \frac{7x+16}{21} - \frac{x+8}{4x+10} = \frac{23}{70} + \frac{x}{3}$$

$$17. \frac{x-5}{6(x-1)} + \frac{1}{9} = \frac{x-3}{4(x-1)}$$

$$18. \frac{1-x}{1+x} + \frac{1+x}{x-1} + \frac{1}{1-x^2} = 0$$

$$19. \frac{x-1}{2} + \frac{x+2}{9} - \frac{x+9}{8} = 2$$

$$20. \frac{3}{2x+6} + \frac{3}{9-3x} = \frac{7-x}{9-x^2}$$

$$21. \frac{1}{x-1} = \frac{2}{x-5}$$

$$22. \frac{7x-\frac{1}{3}}{9x-\frac{3}{4}} = \frac{8}{5}$$

$$23. \frac{x+1}{5} - \frac{x-1}{5} = \frac{3-x}{3}$$

$$24. \frac{1+a^{-1}}{a} - 2a^{-1} = 0$$

$$25. \frac{\frac{x}{2} - (x-1)}{\frac{1}{2} - x} = \frac{2}{3}$$

$$26. \frac{x-1}{x-3} - \frac{x+1}{x+3} = \frac{11x+8}{3x^2-27}$$

$$27. \frac{x-1}{4} - \frac{1}{8} \left(\frac{x-5}{4} - \frac{14-2x}{5} \right) = \frac{x-9}{2} - \frac{7}{8}$$

$$28. \frac{x+1}{x-1} - \frac{x-1}{x+1} = \frac{8}{x-1}$$

$$29. \frac{a-2}{a+3} = \frac{a+5}{a-4}$$

$$30. \frac{1}{1 - \frac{1}{1 + \frac{1}{1 - \frac{1}{x}}}} = 3$$

GABARITO

Q1.

1. $U = \mathbb{R}^*$; $V = \{-40\}$
2. $U = \mathbb{R} - \{-\frac{1}{2}, \frac{1}{2}\}$; $V = \emptyset$
3. $U = \mathbb{R}^*$; $V = \{12\}$
4. $U = \mathbb{R}^*$; $V = \{2\}$
5. $U = \mathbb{R} - \{-2, 1\}$; $V = \{\frac{4}{7}\}$
6. $U = \mathbb{R}^*$; $V = \{10\}$
7. $U = \mathbb{R} - \{3, 5\}$; $V = \{7\}$
8. $U = \mathbb{R}$; $V = \{\frac{2}{7}\}$
9. $U = \mathbb{R} - \{-1, 1\}$; $V = \emptyset$
10. $U = \mathbb{R} - \{-2, 2\}$; $V = \{8\}$
11. $U = \mathbb{R} - \{1\}$; $V = \{9\}$
12. $U = \mathbb{R} - \{0, 1\}$; $V = \{-\frac{1}{7}\}$
13. $U = \mathbb{R} - \{0, 1\}$; $V = \{\frac{2}{3}\}$
14. $U = \mathbb{R}$; $V = \{11\}$
15. $U = \mathbb{R} - \{-1, -3\}$; $V = \{\frac{5}{3}\}$
16. $U = \mathbb{R} - \{-\frac{5}{2}\}$; $V = \{5\}$
17. $U = \mathbb{R} - \{1\}$; $V = \{7\}$
18. $U = \mathbb{R} - \{-1, 1\}$; $V = \{\frac{1}{4}\}$
19. $U = \mathbb{R}$; $V = \{7\}$
20. $U = \mathbb{R} - \{-3, 3\}$; $V = \{-1\}$
21. $U = \mathbb{R} - \{1, 5\}$; $V = \{-3\}$
22. $U = \mathbb{R} - \{\frac{1}{12}\}$; $V = \{\frac{13}{111}\}$
23. $U = \mathbb{R}$; $V = \{\frac{9}{5}\}$
24. $U = \mathbb{R} - \{0\}$; $V = \{1\}$
25. $U = \mathbb{R} - \{\frac{1}{2}\}$; $V = \{-4\}$
26. $U = \mathbb{R} - \{-3, 3\}$; $V = \{8\}$
27. $U = \mathbb{R}$; $V = \{17\}$
28. $U = \mathbb{R} - \{-1, 1\}$; $V = \{-2\}$
29. $U = \mathbb{R} - \{-3, 4\}$; $V = \{-\frac{1}{2}\}$
30. $U = \mathbb{R}^*$; $V = \{-1\}$