

Resolução - Inequações

$$1. \frac{2}{5}(-x - \frac{5}{3}) + 1 \geq \frac{x+4}{3} \quad 1$$

$$-1 \geq \frac{11x}{15} \quad 4$$

$$x \leq -\frac{15}{11} \quad 6$$

$$\frac{1}{3} - \frac{4}{3} \geq \frac{2x}{5} + \frac{x}{3} \quad 3$$

$$-\frac{2x}{5} - \frac{2}{3} + 1 \geq \frac{x}{3} + \frac{4}{3} \quad 2$$

$$\frac{11x}{15} \leq -1 \quad 5$$

$$S =] -\infty, -\frac{15}{11}] \quad 7$$

2024, 1ª fase

$$2. -2(x - \frac{7}{2}) - \frac{x}{5} \leq -\frac{x}{10} + 4 \quad 1$$

$$-2x - \frac{x}{5} + \frac{x}{10} \leq 4 - 7 \quad 3$$

$$-\frac{21}{10}x \leq -3 \quad 4$$

$$-2x + 7 - \frac{x}{5} \leq -\frac{x}{10} + 4 \quad 2$$

$$x \geq \frac{10}{7} \quad 6$$

$$x \geq \frac{30}{21} \quad 5$$

$$S = [\frac{10}{7}, +\infty[\quad 7$$

2024, 2ª fase

$$3. \frac{3(1-x)}{4} \geq \frac{x}{3} + 1 \Leftrightarrow \frac{3-3x}{4} \geq \frac{x}{3} + 1 \Leftrightarrow 9 - 9x \geq 4x + 12 \Leftrightarrow -13x \geq 3 \Leftrightarrow x \leq -\frac{3}{13}$$

$$C.S. =] -\infty, -\frac{3}{13}]$$

2023, 1ª fase

$$4. 2(3 - x) < \frac{3x+4}{3} \Leftrightarrow 6 - 2x < \frac{3x+4}{3} \Leftrightarrow 18 - 6x < 3x + 4 \Leftrightarrow -6x - 3x < 4 - 18 \Leftrightarrow \\ \Leftrightarrow -9x < -14 \Leftrightarrow x > \frac{14}{9}$$

$$\text{C.S.} =] \frac{14}{9}, +\infty [$$

2023, 2ª fase

$$5. \frac{1}{3}(x+2) > \frac{5x}{2} + 1 \Leftrightarrow \frac{x}{3} + \frac{2}{3} > \frac{5x}{2} + 1 \Leftrightarrow 2x + 4 > 15x + 6 \Leftrightarrow 2x - 15x > 6 - 4 \Leftrightarrow -13x > 2 \Leftrightarrow$$

$$\Leftrightarrow x < -\frac{2}{13}$$

$$\text{C.S.} =] -\infty, -\frac{2}{13} [$$

2023, Época especial

$$6. 5(1 - x) < \frac{x-3}{2} \Leftrightarrow 5 - 5x < \frac{x-3}{2} \Leftrightarrow 10 - 10x < x - 3 \Leftrightarrow -10x - x < -3 - 10 \Leftrightarrow \\ \Leftrightarrow -11x < -13 \Leftrightarrow x > \frac{13}{10}$$

$$\text{C.S.} =] \frac{13}{10}, +\infty [$$

2022, 1ª fase, caderno 2

$$7. \frac{2x-5}{3} + \frac{1}{2}x > 2(x-1) \Leftrightarrow \frac{2x-5}{3} + \frac{1}{2}x > 2x - 2 \Leftrightarrow 4x - 10 + 3x > 12x - 12 \Leftrightarrow \\ \Leftrightarrow 4x + 3x - 12x > 10 - 12 \Leftrightarrow -5x > -2 \Leftrightarrow x < \frac{2}{5}$$

$$\text{C.S.} =] -\infty, \frac{2}{5} [$$

2022, 2ª fase, caderno 2

$$8. -\frac{3x}{2} + \frac{6+x}{7} < \frac{1}{14}(x+3) \Leftrightarrow -\frac{3x}{2} + \frac{6+x}{7} < \frac{x}{14} + \frac{3}{14} \Leftrightarrow -\frac{21x}{14} + \frac{12+2x}{14} < \frac{x}{14} + \frac{3}{14} \Leftrightarrow \\ \Leftrightarrow -21x + 12 + 2x < x + 3 \Leftrightarrow -21x + 2x - x < 3 - 12 \Leftrightarrow \\ \Leftrightarrow -20x < -9 \Leftrightarrow x > \frac{-9}{-20} \Leftrightarrow x > \frac{9}{20}$$

$$\text{C.S.} =]\frac{9}{20}, +\infty[$$

2021, 1ª fase, caderno 2

$$9. \frac{2+x}{3} > 2(x-1) \Leftrightarrow \frac{2+x}{3} > 2x-2 \Leftrightarrow 2+x > 6x-6 \Leftrightarrow x-6x > -6-2 \Leftrightarrow -5x > -8 \Leftrightarrow x < \frac{8}{5}$$

$$\text{C.S.} =]-\infty, \frac{8}{5}[$$

2019, 1ª fase, caderno 2

$$10. \frac{x-4}{6} - \frac{1}{3} < 2(x+1) \Leftrightarrow \frac{x-4}{6} - \frac{2}{6} < 2x+2 \Leftrightarrow \frac{x-4-2}{6} < \frac{12x+12}{6} \Leftrightarrow x-6 < 12x+12 \Leftrightarrow x-12x < 12+6 \Leftrightarrow -11x < 18 \Leftrightarrow x > -\frac{18}{11}$$

$$\text{C.S.} =]-\frac{18}{11}, +\infty[$$

2019, 2ª fase, caderno 2

$$11. \frac{1-5x}{4} > 3(x-1) \Leftrightarrow \frac{1-5x}{4} > 3x-3 \Leftrightarrow 1-5x > 12x-12 \Leftrightarrow -5x-12x > -12-1 \Leftrightarrow -17x > -13 \Leftrightarrow x < \frac{13}{17}$$

$$\text{C.S.} =]-\infty, \frac{13}{17}[$$

2019, Época especial, caderno 2

$$12. \frac{2(1-x)}{3} < \frac{1}{2}x + 2 \Leftrightarrow \frac{2-2x}{3} < \frac{x}{2} + 2 \Leftrightarrow 4-4x < 3x+12 \Leftrightarrow -4x-3x < 12-4 \Leftrightarrow -7x < 8 \Leftrightarrow x > -\frac{8}{7}$$

$$\text{C.S.} =]-\frac{8}{7}, +\infty[$$

2018, 1ª fase, caderno 2

$$13. \frac{1}{4}(3-x) - 2 > \frac{1}{3}x \Leftrightarrow \frac{3(3-x)}{12} - \frac{24}{12} > \frac{4x}{12} \Leftrightarrow 9-3x-24 > 4x \Leftrightarrow -3x-4x > 24-9 \Leftrightarrow -7x > 15 \Leftrightarrow x < -\frac{15}{7}$$

$$\text{C.S.} =]-\infty, -\frac{15}{7}[$$

2018, 2ª fase, caderno 2

$$14. \frac{1-x}{2} < 3(2x-1) \Leftrightarrow \frac{1-x}{2} < 6x-3 \Leftrightarrow 1-x < 12x-6 \Leftrightarrow -x-12x < -6-1 \Leftrightarrow -13x < -7 \Leftrightarrow x > \frac{-7}{-13} \Leftrightarrow x > \frac{7}{13}$$

$$\text{C.S.} =]\frac{7}{13}, +\infty[$$

$$2018, \acute{E}poca especial, caderno 2 \quad 3(1-x) > \frac{x+5}{2} \Leftrightarrow 3-3x > \frac{x+5}{2} \Leftrightarrow 6-6x > x+5$$

$$\Leftrightarrow -6x-x > 5-6 \Leftrightarrow -7x > -1 \Leftrightarrow x < \frac{-1}{-7} \Leftrightarrow x < \frac{1}{7}$$

$$\text{C.S.} =]-\infty, \frac{1}{7}[$$

2017, 1ª fase, caderno 2

$$15. \frac{x+3}{5} > 2(x-1) \Leftrightarrow \frac{x+3}{5} > 2x-2 \Leftrightarrow x+3 > 10x-10 \Leftrightarrow x-10x > -10-3 \Leftrightarrow -9x > -13 \Leftrightarrow x < \frac{13}{9}$$

$$\text{C.S.} =]-\infty, \frac{13}{9}[$$

2017, 2ª fase, caderno 2

$$16. \frac{2(3-x)}{3} \leq \frac{x}{2} + \frac{2}{3} \Leftrightarrow \frac{6-2x}{3} \leq \frac{x}{2} + \frac{2}{3} \Leftrightarrow 12-4x \leq 3x+4 \Leftrightarrow -4x-3x \leq 4-12 \Leftrightarrow -7x \leq -8 \Leftrightarrow x \geq \frac{8}{7}$$

$$\text{C.S.} = [\frac{8}{7}, +\infty[$$

2017, Época especial, caderno 2

$$17. \frac{x-1}{6} \leq \frac{5x-1}{3} \Leftrightarrow \frac{x-1}{6} \leq \frac{10x-2}{6} \Leftrightarrow x-1 \leq 10x-2 \Leftrightarrow x-10x \leq -2+1 \Leftrightarrow -9x \leq -1 \Leftrightarrow x \geq \frac{1}{9}$$

$$\text{C.S.} = [\frac{1}{9}, +\infty[$$

2016, 1ª fase, caderno 2

$$18. 2(1-x) > \frac{x}{5} + 1 \Leftrightarrow 2-2x > \frac{x}{5} + 1 \Leftrightarrow 10-10x > x+5 \Leftrightarrow -10x-x > 5-10 \Leftrightarrow -11x > -5 \Leftrightarrow x < \frac{5}{11}$$

$$\text{C.S.} =]-\infty, \frac{5}{11}[$$

2016, 2^a fase, caderno 2

$$19. -2x < 6 \Leftrightarrow x > \frac{6}{-2} \Leftrightarrow x > -3$$

Opção(A)

2016, Época especial, caderno 2

$$20. 1 - (3x - 2) < 4 + x \Leftrightarrow 1 - 3x + 2 < 4 + x \quad -3x - x < 4 - 2 - 1 \Leftrightarrow -4x < 1 \Leftrightarrow x > -\frac{1}{4}$$

$$\text{C.S.} =] - \frac{1}{4}, +\infty[$$

2015, 1^a fase, caderno 2

$$21. -3x \geq 6 \Leftrightarrow x \leq \frac{6}{-3} \Leftrightarrow x \leq -2$$

$$\text{C.S.} =] - \infty, -2]$$

2015, 2^a fase, caderno 2

$$22. 2 - x > \frac{x}{3} - \frac{1}{2} \Leftrightarrow 6(2 - x) > 2x - 3 \text{ c } 12 - 6x > 2x - 3 \Leftrightarrow -6x - 2x > -12 - 3 \Leftrightarrow -8x > -15 \Leftrightarrow x < \frac{-15}{-8} \Leftrightarrow x < \frac{15}{8}$$

$$\text{C.S.} =] - \infty, \frac{15}{8}[$$

2015, Época especial, caderno 2