

$$1. \quad \frac{2x+3}{3} - \frac{x-3}{2} = x \quad | \cdot 6$$

$$2(2x+3) - 3(x-3) = 6x$$

$$4x + 6 - 3x + 9 = 6x$$

$$x + 15 = 6x \quad | -x$$

$$15 = 5x \quad | :5$$

$$\underline{\underline{3 = x}}$$

$$2. \quad \frac{x-2}{x^2-1} < 1 - \frac{x+2}{x+1}$$

$$x \neq +1; -1$$

$$\frac{x-2}{(x+1)(x-1)} < \frac{(x+1)(x-1)}{(x+1)(x-1)} - \frac{(x+2)(x-1)}{(x+1)(x-1)}$$

$$| \cdot (x+1)(x-1)$$

$$x-2 < \cancel{x^2} - 1 - \cancel{x^2} - x + 2$$

$$x-2 < -x+1$$

$$| +x$$

$$2x-2 < 1$$

$$| +2$$

$$2x < 3$$

$$| :2$$

$$\underline{\underline{x < \frac{3}{2}}}$$

$$\mathbb{L} = \underline{\underline{\{0, -2, -3, -4, \dots\}}}$$

$$3. \quad x - \frac{3}{4} < 2 - \frac{2x}{3} \quad | \cdot 12$$

$$12x - 9 < 24 - 8x \quad | +8x$$

$$20x - 9 < 24 \quad | +9$$

$$20x < 33 \quad | :20$$

$$\underline{\underline{x < 1,65}}$$

$$\mathbb{L} = \underline{\underline{\{0, 1\}}}$$

$$2 - \frac{2x}{3} < \frac{x}{2} + \frac{13}{6} \quad | \cdot 6$$

$$12 - 4x < 3x + 13 \quad | +4x$$

$$12 < 7x + 13 \quad | -13$$

$$-1 < 7x \quad | :7$$

$$\underline{\underline{-\frac{1}{7} < x}}$$

$$\underline{4.} \quad \frac{4}{x} - \frac{x}{4-x} - 1 = 0 \quad x \neq 0; 4$$

$$\frac{4(4-x)}{x(4-x)} - \frac{x^2}{x(4-x)} - x(4-x) = 0 \quad | \cdot x(4-x)$$

$$4(4-x) - x^2 - x(4-x) = 0$$

$$16 - 4x - x^2 - 4x + x^2 = 0$$

$$\textcircled{2} \quad 16 - 8x = 0 \quad | + 8x$$

$$16 = 8x \quad | : 8$$

$$2 = x \quad || \cdot$$

$$\underline{\underline{L = \{2\} \quad || \cdot}}$$

$$\underline{5.} \quad \frac{x^2}{2x^2-18} - \frac{x}{6x-18} = \frac{x+1}{3x+9} \quad x \neq +3; -3$$

$$\frac{x^2}{2(x^2-9)} - \frac{x}{6(x-3)} = \frac{x+1}{3(x+3)}$$

$$\frac{3x^2}{6(x+3)(x-3)} - \frac{x(x+3)}{6(x+3)(x-3)} = \frac{2(x+1)(x-3)}{6(x+3)(x-3)} \quad | \cdot 6(x+3)(x-3)$$

$$\textcircled{2} \quad \cancel{3x^2} - \cancel{x^2} - 3x = \cancel{2x^2} - 4x - 6 \quad | + 4x$$

$$x = -6 \quad || \cdot$$

$$\underline{\underline{L = \{-6\} \quad || \cdot}}$$

$$\underline{6.} \quad 1 - \frac{x}{3} \cdot \frac{12}{x-3} > -\frac{1}{x} \quad x \neq 0; +3$$

$$\frac{x(x-3)}{x(x-3)} - \frac{x^2}{x(x-3)} > -\frac{x-3}{x(x-3)} \quad | \cdot x(x-3)$$

$$\cancel{x^2} - 3x - \cancel{x^2} > -x + 3 \quad | + 3x$$

$$\textcircled{2} \quad 0 > 2x + 3 \quad | - 3$$

$$-3 > 2x \quad | : 2$$

$$-\frac{3}{2} > x \quad || \cdot$$

$$\underline{\underline{L = \{-2, -3, -4, \dots\} \quad || \cdot}}$$

$$7. \quad \frac{x}{3} - 2 \cdot \left(\frac{x-1}{5} - x \right) = 1$$

$$\frac{x}{3} - \frac{2x-2}{5} + 2x = 1 \quad | \cdot 15$$

$$5x - 3(2x-2) + 30x = 15$$

$$5x - 6x + 6 + 30x = 15$$

$$29x + 6 = 15 \quad | -6$$

$$29x = 9 \quad | :29$$

$$\underline{x = \frac{9}{29}} \quad \text{112}$$

$$\underline{\mathbb{L} = \left\{ \frac{9}{29} \right\}} \quad \text{116}$$

$$8. \quad \frac{6x}{3x-2} - \frac{4x+5}{4x+3} > 1 \quad x \neq \frac{2}{3}; -\frac{3}{4}$$

$$\frac{6x(4x+3)}{(3x-2)(4x+3)} - \frac{(4x+5)(3x-2)}{(3x-2)(4x+3)} > 1 \quad | \cdot (3x-2)(4x+3)$$

$$6x(4x+3) - (4x+5)(3x-2) > (3x-2)(4x+3)$$

$$\cancel{24x^2} + 18x - \cancel{12x^2} - 7x + 10 > \cancel{12x^2} + x - 6$$

$$11x + 10 > x - 6 \quad | -x$$

$$10x + 10 > -6 \quad | -10$$

$$10x > -16 \quad | :10$$

$$\underline{x > -1,6} \quad \text{1}$$

$$\underline{\mathbb{L} = \left\{ x \mid x > -1,6 \right\} \setminus \left\{ +\frac{2}{3}; -\frac{3}{4} \right\}} \quad \text{1}$$

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