

$$1. \quad \frac{x+2}{24} - \frac{x-3}{16} = 0$$

$$\frac{2(x+2)}{48} - \frac{3(x-3)}{48} = 0 \quad | \cdot 48$$

$$2(x+2) - 3(x-3) = 0$$

$$2x + 4 - 3x + 9 = 0$$

$$-x + 13 = 0 \quad | + x$$

$$\underline{13 = x} \quad 1$$

$$\underline{\underline{L = \{13\}}} \quad 1/2$$

$$2. \quad 1 + \frac{3-x}{2} < 2 - \frac{2x}{3}$$

$$\frac{6}{6} + \frac{3(3-x)}{6} < \frac{12}{6} - \frac{2 \cdot 2x}{6} \quad | \cdot 6$$

$$6 + 3(3-x) < 12 - 4x$$

$$6 + 9 - 3x < 12 - 4x$$

$$15 - 3x < 12 - 4x \quad | + 4x$$

$$15 + x < 12 \quad | - 15$$

$$\underline{x < -3} \quad 1$$

$$\underline{\underline{L = \{-4, -5, -6, \dots\}}} \quad 1/2$$

$$\underline{3.} \quad \frac{x}{3} < \frac{2x-5}{8} - \frac{x-12}{6}$$

$$\frac{8x}{24} < \frac{3(2x-5)}{24} - \frac{4(x-12)}{24} \quad | \cdot 24$$

$$8x < 3(2x-5) - 4(x-12)$$

$$8x < 6x - 15 - 4x + 48$$

$$8x < 2x + 33 \quad | -2x$$

$$6x < 33 \quad | :6$$

$$\underline{x < \frac{33}{6} = \frac{11}{2}} \quad \text{!}_2$$

$$\frac{2x-5}{8} - \frac{x-12}{6} < x$$

$$\frac{3(2x-5)}{24} - \frac{4(x-12)}{24} < \frac{24x}{24} \quad | \cdot 24$$

$$3(2x-5) - 4(x-12) < 24x$$

$$6x - 15 - 4x + 48 < 24x$$

$$2x + 33 < 24x \quad | -2x$$

$$33 < 22x \quad | :22$$

$$\frac{33}{22} < x$$

$$\underline{x > \frac{3}{2}} \quad \text{!}_2$$

$$\underline{\underline{L = \{2, 3, 4, 5\}}} \quad \text{!}_2$$

$$\underline{4.} \quad \frac{6-5x}{3} - \left(\frac{1}{x} + \frac{1}{4x} \right) = - \frac{10x+3}{6} \quad x \neq 0$$

$$\frac{4x(6-5x)}{12x} - \left(\frac{12}{12x} + \frac{3}{12x} \right) = - \frac{2x(10x+3)}{12x} \quad | \cdot 12x$$

$$4x(6-5x) - (12+3) = -2x(10x+3)$$

$$24x - \cancel{20x^2} - 12 - 3 = -\cancel{20x^2} - 6x$$

$$24x - 15 = -6x \quad | +6x$$

$$30x - 15 = 0 \quad | +15$$

$$30x = 15 \quad | :30$$

$$x = \frac{15}{30} = \frac{1}{2} \quad \uparrow$$

$$\underline{\underline{L = \left\{ \frac{1}{2} \right\}}}$$

$$\underline{5.} \quad \frac{1}{x-2} = \frac{2}{x^2-2x} \quad x \neq 0; +2$$

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

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

$$x = 2 \quad \uparrow$$

$$\underline{\underline{L = \{ \}}}$$

$$\underline{6}. \quad \frac{1}{x+4} - \frac{1}{x-3} = \frac{7}{(3-x)(x+4)} \quad x \neq -4; +3$$

$$\frac{1}{x+4} + \frac{1}{3-x} = \frac{7}{(3-x)(x+4)}$$

$$\frac{3-x}{(3-x)(x+4)} + \frac{x+4}{(3-x)(x+4)} = \frac{7}{(3-x)(x+4)} \quad | \cdot (3-x)(x+4)$$

$$3-x + x+4 = 7$$

$$\underline{7 = 7} \quad \checkmark$$

$$\mathbb{L} = \underline{\underline{\mathbb{Q} \setminus \{-4; +3\}}} \quad \checkmark$$

1/2

$$\underline{7}. \quad \frac{2x-3}{x+3} < \frac{6x-13}{3x+11} \quad x \neq -3; -\frac{11}{3}$$

$$\frac{(2x-3)(3x+11)}{(x+3)(3x+11)} < \frac{(6x-13)(x+3)}{(x+3)(3x+11)} \quad | \cdot (x+3)(3x+11)$$

$$(2x-3)(3x+11) < (6x-13)(x+3)$$

$$\cancel{6x^2} + 13x - 33 < \cancel{6x^2} + 5x - 39 \quad | -5x$$

$$8x - 33 < -39 \quad | +33$$

$$8x < -6 \quad | :8$$

$$\underline{x < -\frac{6}{8} = -\frac{3}{4}} \quad \checkmark$$

$$\mathbb{L} = \underline{\underline{\{-1, -2, -3, \dots\}}} \quad \checkmark$$

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$$8. \quad \frac{2x-1}{x^2-6x-16} = \frac{5-x}{x+2} - \frac{x-1}{8-x} \quad x \neq +8; -2$$

$$\frac{2x-1}{(x-8)(x+2)} = \frac{5-x}{x+2} + \frac{x-1}{x-8}$$

$$\frac{2x-1}{(x-8)(x+2)} = \frac{(5-x)(x-8)}{(x-8)(x+2)} + \frac{(x-1)(x+2)}{(x-8)(x+2)} \quad | \cdot (x-8)(x+2)$$

$$2x-1 = (5-x)(x-8) + (x-1)(x+2)$$

$$2x-1 = 5x - 40 - x^2 + 8x + x^2 + 2x - x - 2$$

$$2x-1 = 13x - 42$$

$$-1 = 12x - 42$$

$$41 = 12x$$

$$\frac{41}{12} = x$$

$$\underline{\underline{L = \left\{ \frac{41}{12} \right\}}}$$

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$$| -2x$$

$$| +42$$

$$| :12$$

~~12 Pkt~~