

$$1. \quad \frac{6}{x-4} = \frac{3}{x} \quad x \neq 4; 0$$

$$\frac{6x}{x(x-4)} = \frac{3(x-4)}{x(x-4)} \quad | \cdot HN$$

$$6x = 3(x-4)$$

$$6x = 3x - 12 \quad | -3x$$

$$3x = -12 \quad | :3$$

$$\underline{\underline{x = -4}}$$

$$2. \quad \frac{3}{2-x} = \frac{5}{2+x} \quad x \neq 2; -2$$

$$\frac{3(2+x)}{(2-x)(2+x)} = \frac{5(2-x)}{(2-x)(2+x)} \quad | \cdot HN$$

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

$$6 + 3x = 10 - 5x \quad | +5x$$

$$6 + 8x = 10 \quad | -6$$

$$8x = 4 \quad | :8$$

$$\underline{\underline{x = \frac{4}{8} = \frac{1}{2}}}$$

$$3. \quad \frac{1}{x+2} = \frac{2}{1-3x} \quad x \neq -2; \frac{1}{3}$$

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

$$1-3x = 2(x+2)$$

$$1-3x = 2x+4 \quad | +3x$$

$$1 = 5x+4 \quad | -4$$

$$-3 = 5x \quad | :5$$

$$\underline{\underline{-\frac{3}{5} = x}}$$

$$4. \quad \frac{2}{3x-4} = \frac{4}{3-2x} \quad x \neq \frac{4}{3}; \frac{3}{2}$$

$$\frac{2(3-2x)}{(3x-4)(3-2x)} = \frac{4(3x-4)}{(3x-4)(3-2x)} \quad | \cdot \text{HN}$$

$$2(3-2x) = 4(3x-4)$$

$$6 - 4x = 12x - 16 \quad | +4x$$

$$6 = 16x - 16 \quad | +16$$

$$22 = 16x \quad | :16$$

$$\frac{22}{16} = x$$

$$x = \frac{11}{8}$$

$$5. \quad \frac{1}{2x} + \frac{1}{3x} = \frac{1}{6} \quad x \neq 0$$

$$\frac{3}{6x} + \frac{2}{6x} = \frac{x}{6x} \quad | \cdot \text{HN}$$

$$3 + 2 = x$$

$$\underline{\underline{5 = x}}$$

$$6. \quad \frac{1}{6x} - \frac{1}{x^2} = \frac{1}{4x} \quad x \neq 0$$

$$\frac{2x}{12x^2} - \frac{12}{12x^2} = \frac{3x}{12x^2} \quad | \cdot \text{HN}$$

$$2x - 12 = 3x \quad | -2x$$

$$\underline{\underline{-12 = x}}$$

7.

$$\frac{1}{x-2} - \frac{2}{x} = \frac{1}{x} \quad x \neq 2; 0$$

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

$$x - 2(x-2) = x-2$$

$$x - 2x \oplus 4 = x-2$$

$$-x + 4 = x-2 \quad | +x$$

$$4 = 2x-2 \quad | +2$$

$$6 = 2x \quad | :2$$

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

8.

$$\frac{1}{x-1} + \frac{2}{x} = \frac{3}{x} + \frac{1}{(x-1)x} \quad x \neq 1; 0$$

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

$$x + 2(x-1) = 3(x-1) + 1$$

$$x + 2x - 2 = 3x - 3 + 1$$

$$3x - 2 = 3x - 2 \quad | -3x$$

$$\underline{\underline{-2 = -2}}$$

$$\underline{\underline{L = G \setminus \{1; 0\}}}$$