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a)

$$\frac{12}{x} = \frac{6}{x-2} \quad \Big| \cdot x \cdot (x-2)$$

$$\frac{12 \cdot x \cdot (x-2)}{x} = \frac{6 \cdot x \cdot (x-2)}{x-2}$$

$$12(x-2) = 6x$$

$$12x - 24 = 6x \quad \Big| -6x + 24$$

$$6x = 24 \quad \Big| :6$$

$$x = 4$$

c)

$$\frac{x+8}{3x+3} + \frac{x+2}{2x+2} = 1$$

Bestimmung des Hauptnenners: $3x+3 = 3(x+1)$

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

$HN = 2 \cdot 3 \cdot (x+1)$

$$\frac{x+8}{3x+3} + \frac{x+2}{2x+2} = 1 \quad \Big| \cdot 2 \cdot 3 \cdot (x+1)$$

$$\frac{(x+8) \cdot 2 \cdot 3 \cdot (x+1)}{3x+3} + \frac{(x+2) \cdot 2 \cdot 3 \cdot (x+1)}{2x+2} = 1 \cdot 2 \cdot 3 \cdot (x+1)$$

$$(x+8) \cdot 2 + (x+2) \cdot 3 = 6 \cdot (x+1)$$

$$2x + 16 + 3x + 6 = 6x + 6$$

$$5x + 22 = 6x + 6 \quad \Big| -5x - 6$$

$$16 = x$$

e)

$$\frac{1}{x-1} - \frac{2}{x^2} = \frac{1}{x}$$

$HN = x^2 \cdot (x-1)$

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

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

$$x^2 - 2 \cdot (x-1) = x \cdot (x-1)$$

$$x^2 - 2x + 2 = x^2 - x \quad \Big| -x^2 + 2x$$

$$2 = x$$