CF: $(x+1)(1)$

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

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

$$8 - (3x+3) = x^2+x$$

$$8-3x-3 = x^2+x$$

$$0 = x^2+4x-5$$

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

$$\boxed{x = -5 \text{ or } 1}$$ ✓

$$\frac{2}{1} - \frac{3x}{2} = \frac{1+4x-x^2}{2(2x+5)}$$

CF: $2(2x+5)$

$$\frac{2(2)(2x+5)}{1} - \frac{3x(2)(2x+5)}{2} = \frac{(1+4x-x^2)(2)(2x+5)}{2(2x+5)}$$

$$(8x+20) - (6x^2+15x) = 1+4x-x^2$$

$$-6x^2-7x+20 = -x^2+4x+1$$

$$0 = 5x^2+11x-19$$

$$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$$= \frac{-(11) \pm \sqrt{(11)^2-4(5)(-19)}}{2(5)}$$

$$x = 1.14 \text{ or } -3.34$$

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

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

CF: $2(x-3)$

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

$$x+3 = 4x^2 - 12x + 2x$$

$$0 = 4x^2 - 11x - 3$$

$$x = \frac{-(-11) \pm \sqrt{(-11)^2 - 4(4)(-3)}}{2(4)}$$

$x = -.25$ or ~~3~~

$\boxed{x = -.25}$ extraneous.

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