

Quadratic Equation

Example

Solve for x :

$$\frac{x+5}{4} = \frac{9-x}{x}$$

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$$\therefore x(x+5) = 4(9-x)$$

$$\therefore x^2 + 5x = 36 - 4x$$

$$\therefore x^2 + 9x - 36 = 0$$

$$\therefore (x-3)(x+12) = 0$$

$$\therefore x = 3 \text{ or } -12$$

$$2x^2 + 3x - 4 = 0 \text{ has}$$

$$a = 2, \quad b = 3, \quad c = -4$$

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

$$\therefore x = \frac{-3 \pm \sqrt{9 + 32}}{4}$$

$$\therefore x = \frac{-3 \pm \sqrt{41}}{4}$$

$$\text{So, } x \approx 0.85 \text{ or } \approx -2.35$$

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

d $x + \frac{1}{x+2} = 4$

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

e $3x - \frac{4}{x+1} = 10$

c $\frac{x+1}{x} = \frac{x}{2}$

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

