Solving Quadratic Equations by Completing the Square

Overview of problems

Example Set: A

Write the trinomial as the square of a binomial

$x^2 - 6x + 9$

$x^2 + 10x + 25$

$x^2 - x + 1/4$

$x^2 + 4/5 x + 4/25$

Example Set: B

Solve the equation by completing the square

$$x^2 + 8x = -10$$

$$y^2 + 6y - 1 = 0$$

Example Set: C

Solve the equation by completing the square

$$3x^2 + 2x = 1$$

$$2t^2 - 4t - 5 = 0$$

Example Set: D

Solve the equation by completing the square

$$z^2 + \frac{4}{3}z = \frac{4}{3}$$

$$x^2 = -6x - 7$$

Solving Quadratic Equations by Completing the Square

Overview of problems- KEY

Example Set: A

Write the trinomial as the square of a binomial

$x^2 - 6x + 9$ $\quad (x-3)^2$

$x^2 + 10x + 25$ $\quad (x+5)^2$

$x^2 - x + 1/4$ $\quad (x - \frac{1}{2})^2$

$x^2 + 4/5x + 4/25$ $\quad (x + \frac{2}{5})^2$

Example Set: B

Solve the equation by completing the square

$x^2 + 8x = -10$ $\qquad x = -4 \pm \sqrt{6}$

$y^2 + 6y - 1 = 0$ $\qquad y = -3 \pm \sqrt{10}$

Example Set: C

Solve the equation by completing the square

$3x^2 + 2x = 1$ $\qquad x_1 = \frac{1}{3} \quad x_2 = -1$

$2t^2 - 4t - 5 = 0$ $\qquad t = 1 \pm \sqrt{\frac{7}{2}}$

Example Set: D

Solve the equation by completing the square

$z^2 + \frac{4}{3}z = \frac{4}{3}$ $\qquad z_1 = \frac{2}{3} \quad z_2 = -2$

$x^2 = -6x - 7$ $\qquad x = -3 \pm \sqrt{2}$