

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

$$x^2 - 11x + 24 = 0$$

$$(x^2 - 8x)(-3x + 24) = 0$$

$$x(x-8) - 3(x-8) = 0$$

$$(x-3)(x-8) = 0$$

$$\begin{array}{r|l} x-3 & \neq 0 \\ +3 & +3 \\ \hline x & = 3 \end{array}$$

$$\begin{array}{r|l} x-8 & \neq 0 \\ +8 & +8 \\ \hline x & \neq 8 \end{array}$$

$$\begin{array}{r|l} 24 & \\ -8 & \times -3 \\ \hline -11 & \end{array}$$

- ① Everything on the left and zero on the right.
- ② Perfect Square Trinomial OR AC Method to factor the left side.
- ③ Set each factor = 0 and solve for x.

Solve by Factoring

Solve by Graphing

Solve by Completing the Square

Solve by using the Quadratic Formula

$$\begin{aligned}x^2 + 4x - 3 &= 0 \\x^2 + 4x + \square &= 3 + \square \\x^2 + 4x + 4 &= 7 \\(x + 2)^2 &= 7 \\\sqrt{(x + 2)^2} &= \sqrt{7} \\x + 2 &= \pm \sqrt{7} \\x &= -2 \pm \sqrt{7}\end{aligned}$$

- ① Move constant to right side.
- ② Complete the square by taking half of b and squaring it. Do the same to both sides.
- ③ Factor the perfect square trinomial on the left side.
- ④ Solve for x .

Solve by Completing the Square

Solve by using the Quadratic Formula

$$4x^2 - 1 = -8x$$

$$a = 4$$

$$4x^2 + 8x - 1 = 0$$

$$b = 8$$

$$c = -1$$

$$x = \frac{-8 \pm \sqrt{64 - 4(4)(-1)}}{2(4)} \rightarrow \text{discriminant}$$

$$x = \frac{-8 \pm \sqrt{80}}{8}$$

$$x = \frac{-8 \pm 4\sqrt{5}}{8}$$

$$x = \frac{-2 \pm \sqrt{5}}{2}$$

nature of the roots:
2 real solutions
(irrational)

- ① Everything to the left and zero to the right.
- ② Identify a, b, c and plug into formula
- ③ Find the discriminant to describe the nature of the roots.
- ④ Solve for x and don't forget to simplify.

Solve by using the Quadratic Formula