

1. What completes $x^2 + 4x + \underline{\hspace{1cm}}$?

Half of 4 squared

Answer: 4

2. Solve $x^2 + 4x = 5$ by completing the square.

Add 4: $(x+2)^2 = 9$

$x + 2 = \pm 3$

Answer: $x = 1$ or -5

3. Solve $x^2 - 6x = 16$.

Add 9: $(x-3)^2 = 25$

± 5

Answer: $x = 8$ or -2

4. Solve $x^2 + 2x - 4 = 0$ (simplest radical form).

$x^2 + 2x = 4$; add 1

$(x+1)^2 = 5$, $x + 1 = \pm \sqrt{5}$

Answer: $x = -1 \pm \sqrt{5}$

5. Solve $x^2 - 8x + 3 = 0$.

$x^2 - 8x = -3$; add 16

$(x-4)^2 = 13$

Answer: $x = 4 \pm \sqrt{13}$

6. Solve $x^2 + 6x + 2 = 0$.

add 9: $(x+3)^2 = 7$

Answer: $x = -3 \pm \sqrt{7}$

7. Solve $x^2 - 10x + 18 = 0$.

add 25: $(x-5)^2 = 7$

Answer: $x = 5 \pm \sqrt{7}$

8. Solve $x^2 - 4x - 1 = 0$.

add 4: $(x-2)^2 = 5$

Answer: $x = 2 \pm \sqrt{5}$

9. Solve $2x^2 - 8x - 6 = 0$ (divide by 2 first!). ★ challenge

$x^2 - 4x - 3 = 0$; add 4

$(x-2)^2 = 7$

Answer: $x = 2 \pm \sqrt{7}$

10. Solve $x^2 + 5x + 2 = 0$ (fractional completing). ★ challenge

add $(5/2)^2 = 6.25$

$(x + 2.5)^2 = 4.25$

Answer: $x = (-5 \pm \sqrt{17})/2$