

**Question:** Solve  $2x^2 + 8x + 1 = 0$  by completing the square.

**Answer:**

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

$$2(x^2 + 4x) + 1 = 0$$

$$2(x^2 + 4x + 4) + 1 - 4(2) = 0$$

$$2(x + 2)^2 + 1 - 8 = 0$$

$$2(x + 2)^2 - 7 = 0$$

$$2(x + 2)^2 = 7$$

$$(x + 2)^2 = \frac{7}{2}$$

$$x + 2 = \pm \sqrt{\frac{7}{2}}$$

$$x + 2 = \pm \frac{\sqrt{14}}{2}$$

$$x = -2 \pm \frac{\sqrt{14}}{2}$$