

■ Algebra Practice – Color Coded Breakdown (Problems 1–2)

Problem 1: $x^2 + 5x + 6 = 0$

Step 1: Look for two numbers that multiply to

$$6 \rightarrow 2 \times 3 = 6$$

Step 2: Check if they also add to 5 $\rightarrow 2 + 3 = 5$

Step 3: Rewrite as $(x + 2)(x + 3) = 0$

Step 4: Solve each:

$$x + 2 = 0 \rightarrow x = -2$$

$$x + 3 = 0 \rightarrow x = -3$$

■ Final Answer: $x = -2$ or $x = -3$

Problem 2: $x^2 - 9 = 0$

Step 1: Notice this is a difference of squares.

$$x^2 - 9 = (x - 3)(x + 3)$$

Step 2: Think: What number times itself equals

$$9 \rightarrow 3 \times 3 = 9$$

Step 3: Split into two equations:

$$x - 3 = 0 \rightarrow x = 3$$

$$x + 3 = 0 \rightarrow x = -3$$

■ Final Answer: $x = 3$ or $x = -3$