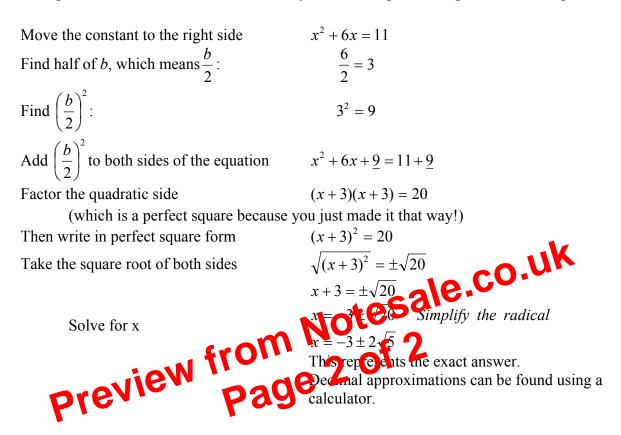
## **3. COMPLETING THE SQUARE**

If the quadratic equation is of the form  $ax^2 + bx + c = 0$ , where  $a \neq 0$  and the quadratic expression is not factorable, try completing the square.

**Example:**  $x^2 + 6x - 11 = 0$ \*\*Important: If  $a \neq 1$ , divide all terms by "a" before proceeding to the next steps.



## 4. QUADRATIC FORMULA

Any quadratic equation of the form  $ax^2 + bx + c = 0$ , where  $a \neq 0$  can be solved for both real and imaginary solutions using the quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Example:

$$x^{2} + 6x - 11 = 0$$
 (a = 1, b = 6, c = -11)

Substitute values into the quadratic formula:

$$x = \frac{-6 \pm \sqrt{6^2 - 4(1)(-11)}}{2(1)} \quad \to \quad x = \frac{-6 \pm \sqrt{36 + 44}}{2} \quad \to \quad x = \frac{-6 \pm \sqrt{80}}{2} \quad simplify \ the \ radical$$

 $x = \frac{-6 \pm 4\sqrt{5}}{2} \rightarrow x = -3 \pm 2\sqrt{5}$  This is the final simplified EXACT answer