

Completing the Square

$$x^2 + 4x - 7 = 0$$

To complete the square we half the coefficient of x

$$(x + 2)^2$$

If we expand this we would get $x^2 + 4x + 4$

In order to keep our equation the same we have to take off the 4

$$(x + 2)^2 - 4 - 7 = 0$$

$$(x + 2)^2 - 11 = 0$$

We can now solve the equation

$$(x + 2)^2 = 11$$

$$x + 2 = \pm\sqrt{11}$$

$$x = -2 \pm\sqrt{11}$$