

Algebra - Quadratic Equations

Q1

- (i) Factorise.

$$x^2 + 7x + 12$$

(a)(i) _____ [2]

- (ii) Hence, solve this equation.

$$x^2 + 7x + 12 = 0$$

(ii) _____ [1]

Q2

- (a) Factorise and solve.

$$x^2 - 2x - 15 = 0$$

[3]

- (b) Solve.

$$3x^2 - 12 = 0$$

[3]

Algebra - Quadratic Equations

Q1

(i) Factorise.

$$x^2 + 7x + 12 = (x+3)(x+4)$$

$$\begin{array}{r} +1 \quad +12 \\ -1 \quad -12 \\ \hline +2 \quad +6 \\ -2 \quad -6 \\ \hline +3 \quad +4 \\ -3 \quad -4 \end{array}$$

(a)(i) $(x+3)(x+4)$ [2]

(ii) Hence, solve this equation.

$$x^2 + 7x + 12 = 0$$

$$(x+3)(x+4) = 0$$

Either $(x+3) = 0$ or $(x+4) = 0$
 $\Rightarrow x = -3$ $\Rightarrow x = -4$

(ii) _____ [1]

$$x = -3, x = -4$$

Q2

(a) Factorise and solve.

$$\begin{array}{r} +1 \quad -15 \\ -1 \quad +15 \\ +3 \quad -5 \checkmark \\ -3 \quad +5 \end{array}$$

$$(x+3)(x-5) = 0$$

$$x^2 - 2x - 15 = 0$$

Either $x+3 = 0$ or $x-5 = 0$
 $\Rightarrow x = -3$ $\Rightarrow x = 5$

Solution $x = -3, x = 5$

[3]

(b) Solve.

$$3x^2 - 12 = 0$$

$$3x^2 - 12 = 0$$

$$3x^2 = 12$$

$$x^2 = \frac{12}{3}$$

$$x^2 = 4$$

$$x = \pm\sqrt{4}$$

$$x = 2 \text{ or } x = -2$$

[3]