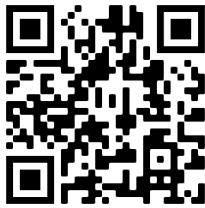**Lesson 3**

3.1 Factorising Quadratics

The word *factorise* in this context means *make brackets.*

When asked to factorise a quadratic such as, $x^2 + 11x + 24$, the task is to find an equivalent expression of the form $(x + a)(x + b)$ where a and b are two real numbers that are to be found.

3.2 Theory & Practice Video

Teaching Video : http://www.NumberWonder.co.uk/v9013/3.mp4

The Theory :

Practice #1 :   Factorise, $x^2 + 11x + 24$

Practice #2:   Factorise, $x^2 + 3x - 10$

3.3 Exercise

Question 1

Factorise;

(**i**) $x^2 + 10x + 21$ (**ii**) $x^2 + 11x + 30$

(**iii**) $x^2 + 9x + 14$ (**iv**) $x^2 + 8x + 15$

(**v**) $x^2 + 14x + 33$ (**vi**) $x^2 + 6x + 9$

(**vii**) $x^2 + 10x + 9$ (**viii**) $x^2 + 14x + 13$

(**ix**) $x^2 + 14x + 48$ (**x**) $x^2 + 18x + 77$

Question 2

Factorise;

(i) $x^2 + 2x - 3$ (ii) $x^2 + 5x - 14$

(iii) $x^2 + 9x - 22$ (iv) $x^2 + 2x - 15$

(v) $x^2 - 2x - 15$ (vi) $x^2 - 4x - 21$

(vii) $x^2 - 8x - 20$ (viii) $x^2 - 8x - 33$

(ix) $x^2 - 3x - 40$ (x) $x^2 - 6x - 40$

Question 3

Factorise;

(**i**) $x^2 - 5x + 6$

(**ii**) $x^2 - 8x + 15$

(**iii**) $x^2 - 10x + 21$

(**iv**) $x^2 - 9x + 20$

(**v**) $x^2 - 10x + 25$

(**vi**) $x^2 - 7x + 6$

(**vii**) $x^2 - 10x + 16$

(**viii**) $x^2 - 8x + 12$

(**ix**) $x^2 - 15x + 44$

(**x**) $x^2 - 14x + 49$

Question 4

Factorise;

(i) $\quad x^2 + 15x + 50$ **(ii)** $\quad x^2 + 5x - 50$

(iii) $\quad x^2 - 15x + 50$ **(iv)** $\quad x^2 - 5x - 50$

Question 5

A quadratic has two real roots, a and b.
The sum of the roots is 13.
The product of the roots is 42.
What are the two roots ?

Question 6

A quadratic has two real roots, a and b.
The sum of the roots is 5.
The product of the roots is -204.
What are the two roots ?