GCSE: **Factorising & Solving Quadratics** | **CM**

This worksheet is designed to give you extra practice on **factorising quadratics and using this method to solve quadratic equations**.

1 Factorise each of the following expressions fully

(a) $x^2 - x - 2$ (b) $x^2 + 3x + 2$ (c) $x^2 + 7x + 10$ (d) $x^2 - 14x + 48$

(e) $x^2 - 4x - 60$ (f) $x^2 + 12x + 32$ (g) $x^2 - 16x + 64$ (h) $x^2 - 11x - 12$

(i) $x^2 + 22x + 57$ (j) $x^2 - 6x + 8$ (k) $x^2 - 10x - 24$ (l) $x^2 + 8x - 48$

2 Factorise each of the following expressions fully

(a) $3x^2 + 11x + 6$ (b) $5x^2 - 18x - 8$ (c) $5x^2 - 9x + 4$ (d) $3x^2 + x - 4$

(e) $5x^2 + 12x - 9$ (f) $4x^2 + 15x - 4$ (g) $4x^2 + 9x + 2$ (h) $4x^2 - 13x - 12$

(i) $4x^2 - 11x - 3$ (j) $3x^2 - 4x - 4$ (k) $5x^2 + 13x - 6$ (l) $2x^2 + 7x - 4$

3 Factorise each of the following expressions fully

(a) $x^2 - 1$ (b) $x^2 - 16$ (c) $x^2 - 100$ (d) $x^2 - 169$

(e) $4x^2 - 4$ (f) $9 - x^2$ (g) $16x^2 - 9$ (h) $x^2 y - 4y$

(i) $9x^2 - 100$ (j) $256 - x^4$ (k) $16x^4 - 1$ (l) $(x-1)x^2 - 4(x-1)$

4 Solve the equations below

(a) $x^2 + 2x - 15 = 0$ (b) $x^2 - 4x + 4 = 0$ (c) $x^2 + 8x + 15 = 0$ (d) $x^2 - 250x + 10000 = 0$

(e) $6x^2 - x - 1 = 0$ (f) $9x^2 + 9x = 10$ (g) $x^2 - 16 = 0$ (h) $2x^2 - 5x - 3 = 0$

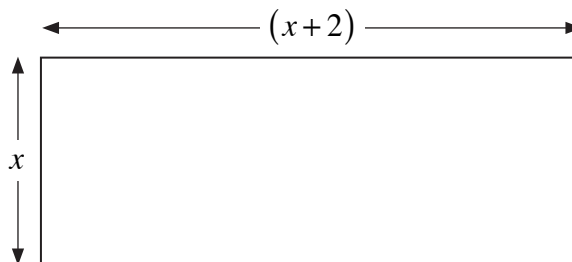(i) $5x^2 = 16(1-x)$ (j) $x^2 - x - 6 = 0$ (k) $12x^2 = x + 1$ (l) $3x^2 - 14x + 15 = 0$

5 James uses a random number generator to pick a positive integer n.

He multiples the number generated by the next consecutive integer and obtains 156.

(a) Show that $n^2 + n - 156 = 0$.

(b) Find the value of n.

6 Emily is going to paint one of the walls in her house.

An outline of the wall is shown below.

All measurements are given in metres.

Emily estimates that exactly three-quarters of a tin of 1.25 L paint is enough to paint her wall.

Given that 1 L of paint covers 16 square metres, use Emily's estimate to find x.

END OF WORKSHEET