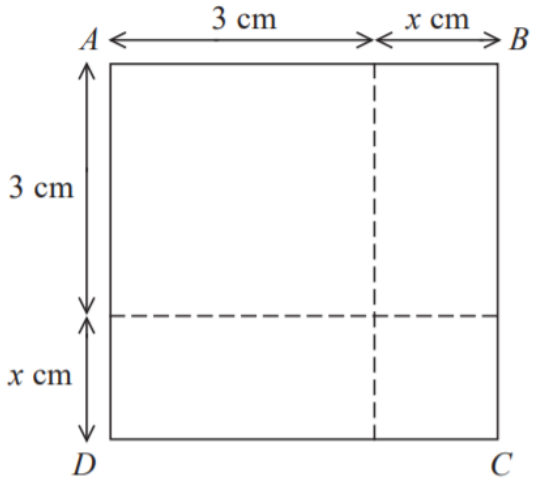
Quadratics Expressions and Equations Past Paper Questions

GCSE Edexcel – Non Calculator

1.



The area of square $ABCD$ is 10 cm^2.

Show that $x^2 + 6x = 1$

2.

Solve algebraically the simultaneous equations

$$x^2 + y^2 = 25$$
$$y - 3x = 13$$

3.

Show that $\frac{2x^2 - 3x - 5}{x^2 + 6x + 5}$ can be written in the form $\frac{ax + b}{cx + d}$ where a, b, c and d are integers.

4.

Solve $x^2 - 6x - 8 = 0$

Write your answer in the form $a \pm \sqrt{b}$ where a and b are integers.

5.

Show that $\frac{3x + 6}{x^2 - 3x - 10} \div \frac{x + 5}{x^3 - 25x}$ simplifies to ax where a is an integer.

6.

Factorise fully $20x^2 - 5$

7.

(a) Simplify $\dfrac{x-1}{5(x-1)^2}$

.....

(1)

(b) Factorise fully $50 - 2y^2$

.....

(2)

8.

(a) Factorise $a^2 - b^2$

.....

(1)

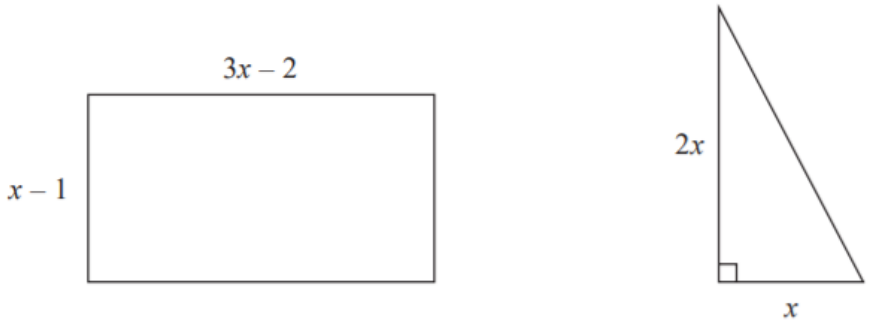
(b) Hence, or otherwise, simplify fully $(x^2 + 4)^2 - (x^2 - 2)^2$

9.

Simplify fully $\dfrac{3x^2 - 8x - 3}{2x^2 - 6x}$

10.

Here is a rectangle and a right-angled triangle.



All measurements are in centimetres.
The area of the rectangle is greater than the area of the triangle.

Find the set of possible values of x.

11.

Solve $x^2 = 4(x - 3)^2$

12.

(a) Expand $x(x + 2)$

(1)

(b) Expand and simplify $3(y + 2) + 4(x - 1)$

(2)

(c) Expand and simplify $(2t - 3)(t + 5)$

(2)

(d) Factorise fully $8a^2 + 12a$

(2)

(e) Factorise $y^2 - y - 2$