

Simultaneous equations: one linear and one quadratic

Grade 8 | Higher | 13 questions, 58 marks

GCSE Maths topic practice



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1 Solve the simultaneous equations

$$y = x^2$$

$$y = x + 6$$

(4 marks)

Answer _____

2 Solve the simultaneous equations

$$y = x^2 - 3x$$

$$y = 2x - 6$$

(4 marks)

Answer _____

3 Solve the simultaneous equations

$$y = x^2 - 4$$

$$3x - y = 6$$

(4 marks)

Answer _____

4 Solve the simultaneous equations

$$x^2 + y^2 = 20$$

$$y = 2x$$

(4 marks)

Answer _____

5 Solve the simultaneous equations

$$y = x^2 + 2x - 1$$

$$y = 3x + 5$$

(4 marks)

Answer _____

6 Solve the simultaneous equations

$$x^2 + y^2 = 13$$

$$x + y = 5$$

(5 marks)

Answer _____

7 Solve the simultaneous equations

$$y = 2x^2 - 3$$

$$y = 5x$$

(5 marks)

Answer _____

- 8 The circle **C** has equation $x^2 + y^2 = 10$
The line **L** has equation $y = x - 2$
Find the coordinates of the points where **L** intersects **C**.

(5 marks)

Answer _____

- 9 Solve the simultaneous equations

$$y = x^2$$

$$x + y = 12$$

(5 marks)

Answer _____

- 10 Solve the simultaneous equations

$$y = x^2 - 2x$$

$$y = x + 1$$

Give your answers in the form $a \pm \frac{\sqrt{b}}{2}$ for x and for y , where a and b are integers.

(5 marks)

Answer _____

- 11 The curve **C** has equation $y = x^2 + 3$. The line **L** has equation $y = 2x$.
Show that **L** does not intersect **C**.

(4 marks)

Answer _____

12 The curve **C** has equation $y = x^2 - 4x + 7$

The line **L** has equation $y = 2x - 2$

Show that **L** touches **C** at exactly one point, and find the coordinates of this point.

(4 marks)

Answer _____

13 Solve the simultaneous equations

$$x^2 + y^2 = 9$$

$$x + 2y = 3$$

(5 marks)

Answer _____

End of questions | Total 58 marks