

**AQA, OCR, Edexcel**

**GCSE**

# GCSE Maths

Simultaneous Equations (Linear and Non Linear) Answers

Name:

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Total Marks: /41

## Simultaneous Equations (Linear and Non-linear)

1. a. On the axis below plot the following equations

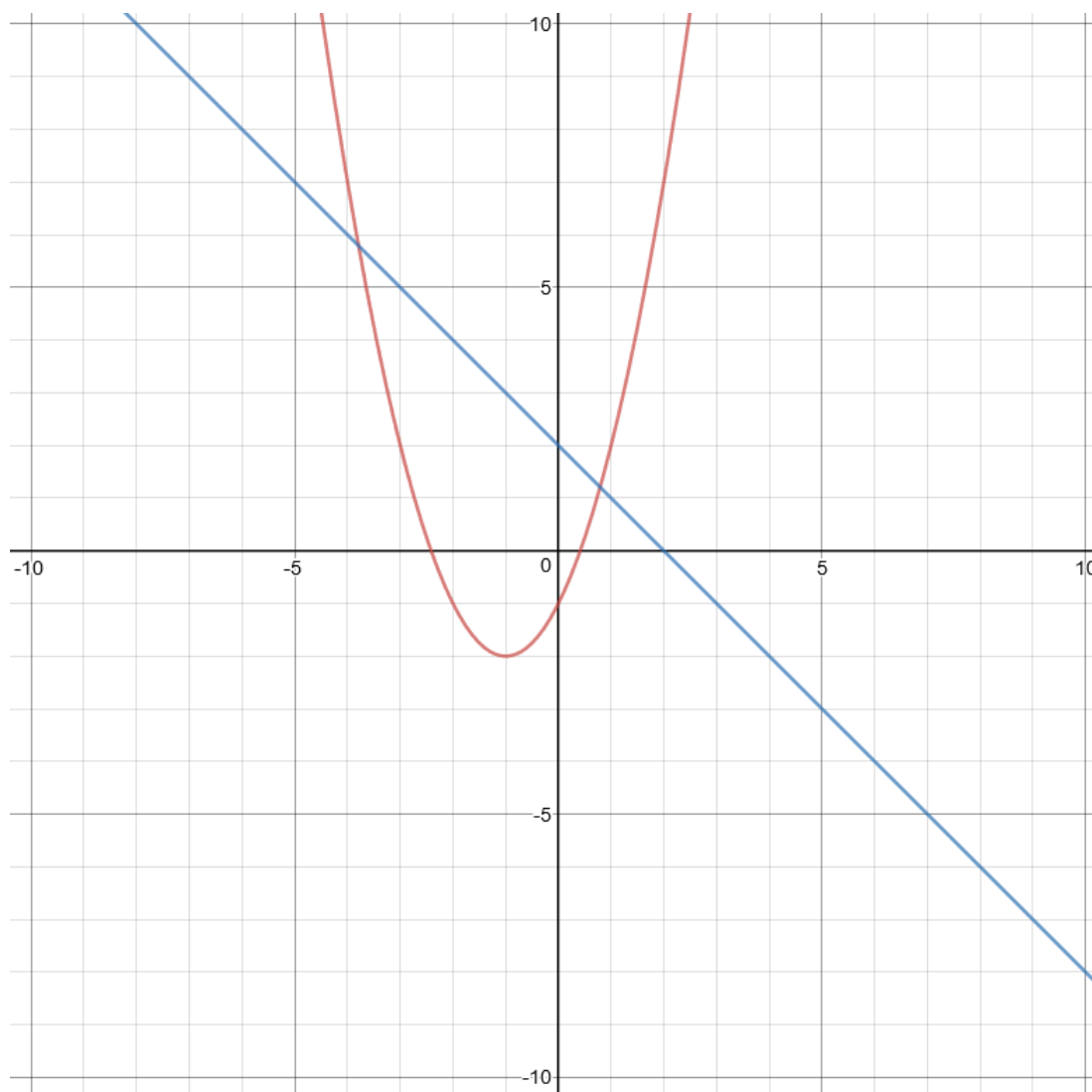
$$y = -x + 2$$

$x$	-2	-1	0	1	2	3
$y$	4	3	2	1	0	-1

And

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

$x$	-4	-3	-2	-1	0	1	2
$y$	7	2	-1	-2	-1	2	7



(5 Marks)

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b. use the graphs drawn in part a to estimate solutions to the two simultaneous equations  $y = -x + 2$  and  $y = x^2 + 2x - 1$ .

(2 Marks)

c. Now solve these two equations simultaneously, giving your answer to three significant figures:

$$y = -x + 2$$

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

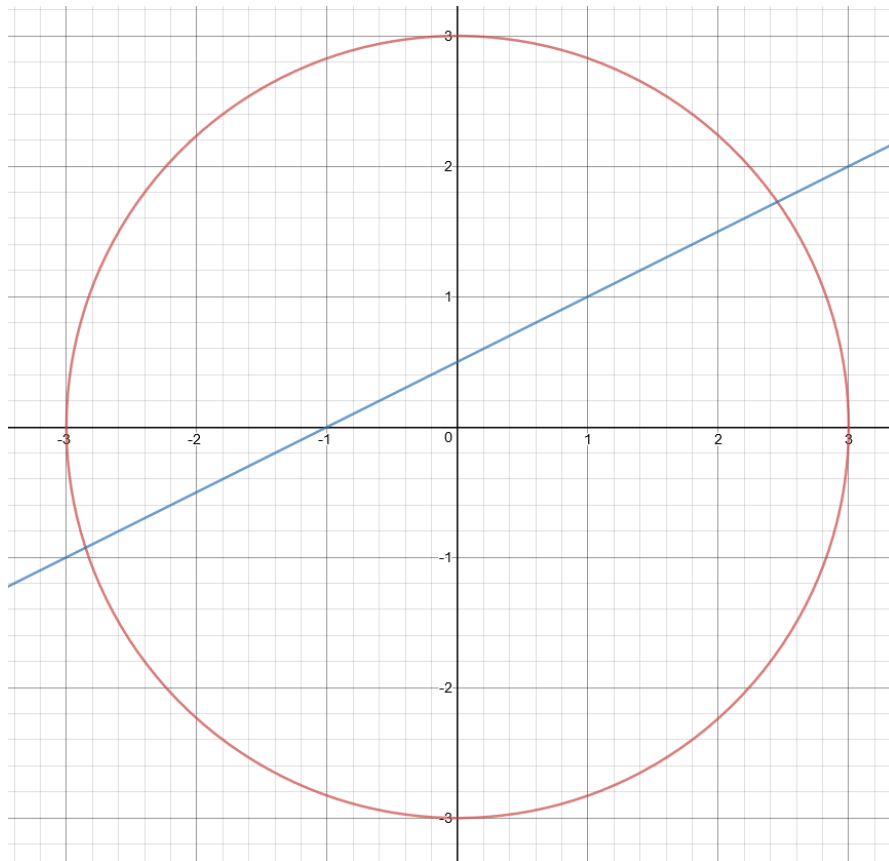
$$x = -3.79, \quad y = 5.79$$

or

$$x = 0.791, \quad y = 1.21$$

(4 Marks)

2. Use the Axis below to find estimates of solutions to the pair of equations  $x^2 + y^2 = 9$  and  $2y = x + 1$



(4 marks)

b. Now solve these two equations simultaneously  $x^2 + y^2 = 9$  and  $2y = x + 1$

Give your answer to 3 significant figures .

$$x = -2.85, \quad y = -0.927$$

or

$$x = 2.45, \quad y = 1.73$$

(4 Marks)

3. Solve these two equations simultaneously:

$$3x + y = -9$$

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

$$x = -3, y = 0$$

or

$$x = -2, y = -3$$

(5 Marks)

4. Solve these two equations simultaneously:

$$2x + 0.5y = 10$$

$$\frac{2(x - 1)}{3} = \frac{2y}{6(x + 4)}$$

$$x = -7, y = 48$$

or

$$x = 2, y = 12$$

(5 Marks)