Simultaneous Equations

Question Paper

Course	Edexcel IGCSE Maths
Section	2. Equations, Formulae & Identities
Topic	Simultaneous Equations
Difficulty	Hard

Time allowed: 90

Score: /69

Percentage: /100

Question 1

Solve

$$2x + 3y = \frac{2}{3}$$

$$3x - 4y = 18$$

[4 marks]

Question 2

Solve the equations

$$x^2 + y^2 = 36$$
$$x = 2y + 6$$

[5 marks]

Question 3

Solve the simultaneous equations $\begin{aligned} x^2 + y^2 &= 9 \\ x + y &= 2 \end{aligned}$

Give your answers correct to 2 decimal places.

[6 marks]

Question 4

Solve algebraically the simultaneous equations

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

[5 marks]

Question 5

Solve algebraically the simultaneous equations

$x^2 + y^2 = 25$
$y - 2x = 5$

[5 marks]

Question 6

3 kg of potatoes and 4 kg of carrots have a total cost of 440p.
4 kg of potatoes and 3 kg of carrots have a total cost of 470p.

Work out the total cost of 1 kg of potatoes and 1 kg of carrots.

[4 marks]

Question 7

A cinema sells adult tickets and child tickets.

The total cost of 3 adult tickets and 1 child ticket is £30
The total cost of 1 adult ticket and 3 child tickets is £22

Work out the cost of an adult ticket and the cost of a child ticket.

[4 marks]

Question 8

3 teas and 2 coffees have a total cost of £7.80
5 teas and 4 coffees have a total cost of £14.20

Work out the cost of one tea and the cost of one coffee.

[4 marks]

Question 9

Solve the simultaneous equations

$$3x + 5y = 3.1$$
$$6x + 3y = 3.75$$

Show clear algebraic working.

$x =$ ....
$y =$ ....

[3 marks]

Question 10

The line with equation $2y = x + 1$ intersects the curve with equation $3y^2 + 7y + 16 = x^2 - x$ at the points A and B

Find the coordinates of A and the coordinates of B
Show clear algebraic working.

[5 marks]

Question 11

Solve the simultaneous equations

$$2x + 3y = 5p$$
$$y = 2x + p$$

where p is a constant.
Give your answers in terms of p in their simplest form.

[4 marks]

Question 12

A linear sequence starts

$$a + 2b \qquad a + 6b \qquad a + 10b \qquad \text{........} \qquad \text{........}$$

The 2nd term has value 8

The 5th term has value 44

Work out the values of a and b.

a = ...

b = ...

[4 marks]

Question 13

Solve.

$$x^2 + y^2 = 34$$
$$y = x + 2$$

Show your working.

x = ... y = ...

x = ... y = ...

[6 marks]

Question 14

The diagrams show the price paid by two groups of people visiting a funfair.

5 adults	£	
4 children	£	
	Total £	78

3 adults	£	
6 children	£	
	Total £	63

Assume each adult pays the same price and each child pays the same price.

Find the price for an adult and the price for a child.

Adult price = £ ....

Child price = £ ....

[5 marks]

Question 15

Given that

$$m\begin{pmatrix} 4 \\ 1 \end{pmatrix} + n\begin{pmatrix} 5 \\ 2 \end{pmatrix} = \begin{pmatrix} 12 \\ 6 \end{pmatrix}$$

find the value of m and the value of n.

m = ...

n = ...

[5 marks]