MME

GCSE MATHEMATICS
AQA | Edexcel | OCR | WJEC

Simultaneous Equations (Linear)

Please write clearly in block capitals

Forename:
Surname:

Materials

For this paper you must have:
- mathematical instruments

You *can* use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1(a)   Solve the simultaneous equations below.

$$6x + 3y = 12$$
$$2x + 6y = 14$$

[3 marks]

$x =$ _____

$y =$ _____

1(b)   Solve the simultaneous equations below.

$$2x - 5y = 16$$
$$3x + 2y = 5$$

[3 marks]

$x =$ _____

$y =$ _____

Turn over for next question

6

Turn over ►

2(a)   Solve the simultaneous equations below.

$$2x + 4y = 14$$
$$4x - 4y = 4$$

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

$y =$ _____

2(b)   Solve the simultaneous equations below.

$$3x - y = 23$$
$$2x + 3y = 8$$

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

$y =$ _____

Turn over for next question

6

Turn over ▶

3   Two different families pay for entry into a water park.

Family 1 has 2 adults and 3 children and costs a total of £20 to enter the park.

Family 2 has 1 adult and 4 children and costs a total of £15 to enter the park.

Work out the cost of the adult ticket, and the child ticket.

[4 marks]

Adult ticket = _____

Child ticket = _____

Turn over ▶

4   Sophie is selling student and parent tickets for a school performance.

On night one, she sells 50 student tickets and 80 parent tickets and makes £340

On night two, she sells 25 student tickets and 50 parent tickets and makes £200

What is the cost for 1 student ticket and the cost for 1 parent ticket?

[4 marks]

Price of student ticket = £ _____

Price of parent ticket = £ _____

4

Turn over ►

5(a) Solve the simultaneous equations below.

$$4x + 8y = -4$$

$$2y - 5x = 23$$

[3 marks]

$x =$ _____

$y =$ _____

5(b) Write down the coordinates for the point of intersection for the lines below.

$$4x + 8y = -4$$

$$2y - 5x = 23$$

[1 mark]

Point of Intersection = (_____ , _____)

4

Turn over ►

6 Andrew goes to the shop to buy some apples and bananas.

He goes to purchase 5 apples and 4 bananas, and the total comes to £5.70.

Unfortunately, he doesn't have enough money, so he puts back 1 apple and 2 bananas.

The new total is £3.60. What is the cost of 1 apple and the cost of 1 banana?

[3 marks]

_____

_____

_____

_____

_____

_____

Price of apple = £ _____

Price of banana = £ _____

Turn over for next question

3

Turn over ▶

7 Two simultaneous equations are given below, where p and q are constants.

$$3x - py = 4$$

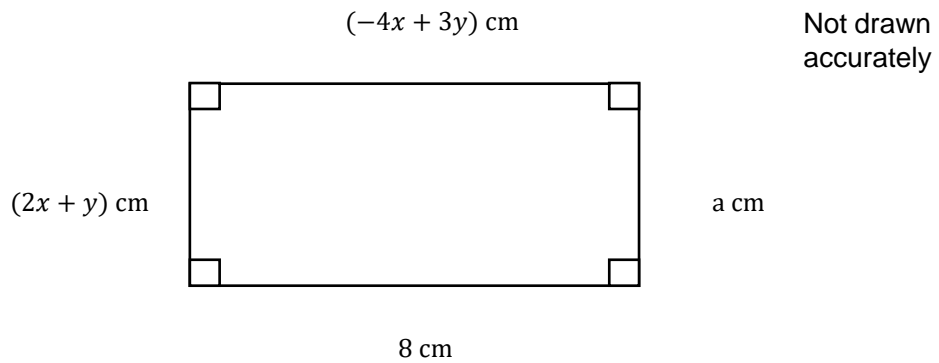$$4x - 3y + q = 0$$

The solution to these equations is $x = 1$, $y = 2$.

Find the value of p and q.

[4 marks]

Answer

Turn over for next question

Turn over ►

8   Examine the rectangle below:

$(-4x + 3y)$ cm   Not drawn
accurately

$(2x + y)$ cm   a cm

8 cm

8(a)   The area of the rectangle is 88 cm^2

What is the value of a?

[1 mark]

_____

_____

$a =$ _____ cm

8(b)   Using the information from the diagram, what is the value of x and y?

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

$y =$ _____

End of Questions

4