Write your name here

Surname	Other names

In the style of:
Pearson Edexcel
GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics
Algebra
Model Answers

Foundation Tier

GCSE style questions arranged by topic

Paper Reference
1MA0/1F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

1 Peter thinks of a number.

He multiplies the number by 3
He then adds 2

His answer is 20

(a) What number did Peter think of?

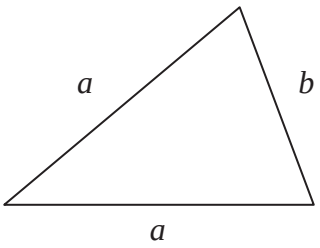
Work backwards from the answer, reversing each operation.
$20 - 2 = 18$
$18 \div 3 = 6$

.....6.....

(2)

Sophie uses the formula $P = 2a + b$

to find the perimeter P of this triangle.



(b) Find the value of P when

$a = 6$ and $b = 4$

$P = 2a + b$
$= (2 \times 6) + 4$
$= 12 + 4$
$= 16$

$P =$ .....16.....

(2)

(Total for Question 1 is 4 marks)

2 (a) Work out the value of

(i) 4^2

$4 \times 4 = 16$

.....16.....

(ii) $\sqrt{64}$

$8 \times 8 = 64$

.....8.....

(iii) 3×2^3

$3 \times 2 \times 2 \times 2 = 24$

.....24.....

(3)

(b) Work out

(i) $-3 + 5$

Think of this as $5 - 3 = 2$

.....2.....

(ii) $-2 - 3$

Add the numbers and call the answer minus

.....–5.....

(2)

(Total for Question 2 is 5 marks)

3 The cost of hiring a car can be worked out using this rule.

Cost = £80 + 50p per mile

Bill hires a car and drives 90 miles.

(a) Work out the cost.

$90 \times 50\text{ p} = £45$
$80 + 45 = 125$

£ 125

(2)

The cost of hiring a car and driving m miles is C pounds.

(b) Complete the formula for C in terms of m.

$C = £80 + £0.50m$
$= 80 + 0.5m$

$C =$ 80 + 0.5m

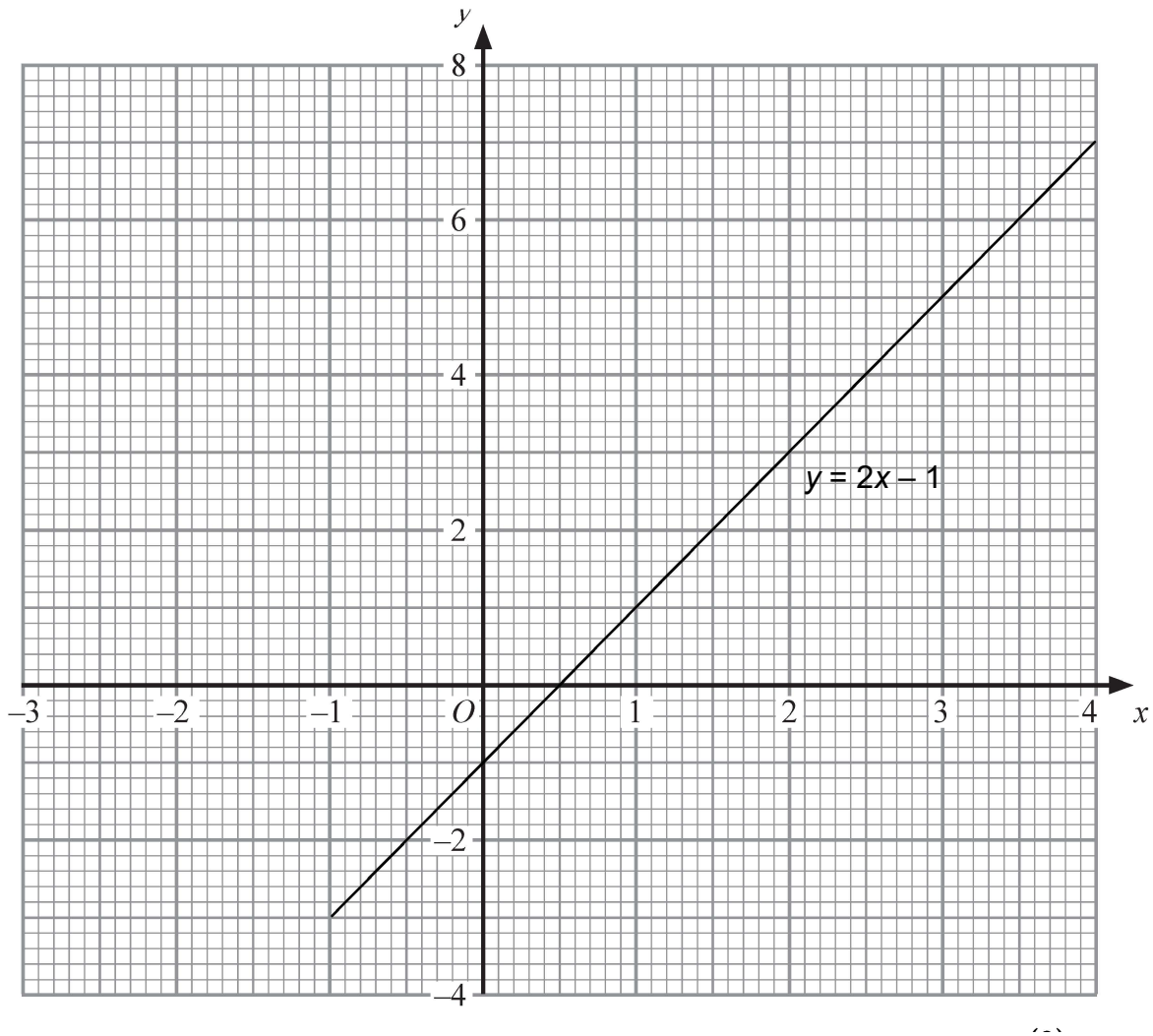
(2)

(Total for Question 3 is 4 marks)

4 (a) Complete this table of values for $y = 2x - 1$

x	–1	0	1	2	3	4
y	–3	–1	1	3	5	7

(2)



(2)

(b) On the grid, draw the graph of $y = 2x - 1$

(Total for Question 4 is 4 marks)

5 Work out an estimate for the value of $\dfrac{31 \times 4.92}{0.21}$

or $\dfrac{30 \times 5}{0.2}$

$= \dfrac{150}{0.2}$

$= \dfrac{1500}{2}$ Multiply top and bottom by 10

$= 750$

.....750.....

(Total for Question 5 is 4 marks)

---

6 (a) Expand $y(2y - 3)$

$2y^2 - 3y$

.....$2y^2 - 3y$.....

(1)

(b) Factorise $x^2 - 4x$

$x(x - 4)$

.....$x(x - 4)$.....

(2)

k is an integer such that $-1 \leqslant k < 3$

(c) List all the possible values of k.

$-1, 0, 1, 2$ Remember 0 is an integer

$-1, 0, 1, 2$

.....$-1, 0, 1, 2$.....

(3)

(Total for Question 6 is 6 marks)

7 (a) Factorise $x^2 - 5x$

$x(x - 5)$

.....x(x – 5).....

(2)

(b) Expand $3(5x - 2)$

$15x - 6$

.....15x – 6.....

(1)

(Total for Question 7 is 3 marks)

---

8 A hotel has 64 guests.
40 of the guests are male.

(a) Work out 40 out of 64 as a percentage.

$$\frac{40}{64} \times \frac{100}{1} = 62.5$$

.....62.5..... %

(2)

40% of the 40 male guests wear glasses.

(b) Write the number of male guests who wear glasses as a fraction of the 64 guests.
Give your answer in its simplest form.

10% of 40 is 4
So 40% of 40 is 16

$$\frac{16}{64} = \frac{1}{4}$$

.....$\frac{1}{4}$.....

(4)

(Total for Question 8 is 6 marks)

9 (a) Simplify $8x - 4x$

$4x$

.....4x.....

(1)

(b) Simplify $y \times y \times y$

y^3

.....y^3.....

(1)

(c) Simplify $5y + 4x - 2x + 5x$

$5y + 7x$

.....5y + 7x.....

(2)

(Total for Question 9 is 4 marks)

10 The two-way table gives some information about how 100 children travelled to school one day.

	Walk	Car	Bike	Total
Boy	15	25	14	54
Girl	22	8	16	46
Total	37	33	30	100

(a) Complete the two-way table.

(3)

One of the children is picked at random.

(b) Write down the probability that this child walked to school that day.

$p(\text{walked}) = \frac{37}{100}$

$\frac{37}{100}$

(1)

One of the girls is picked at random.

(c) Work out the probability that this girl did **not** walk to school that day.

$p(\text{girl not walked}) = 1 - \frac{22}{46}$

$= \frac{46}{46} - \frac{22}{46}$

$\frac{24}{46}$

(2)

(Total for Question 10 is 6 marks)

---

11 Apples cost a pence each.

Bananas cost b pence each.

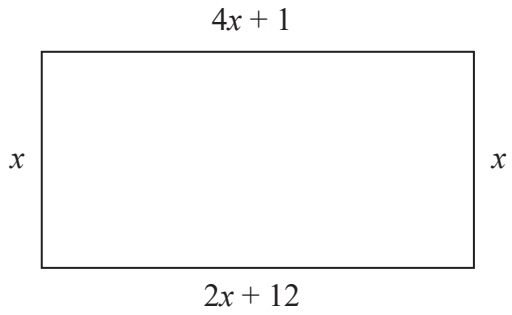
Write down an expression for the total cost, in pence, of 2 apples and 4 bananas.

$2a + 4b$ pence

(Total for Question 11 is 2 marks)

12

Diagram **NOT** accurately drawn



The diagram shows a rectangle.

All the measurements are in centimetres.

(a) Explain why $4x + 1 = 2x + 12$

Opposite sides of a rectangle are equal.

(1)

(b) Solve $4x + 1 = 2x + 12$

$4x - 2x = 12 - 1$

$2x = 11$

$x = 5.5$

$x =$ 5.5

(2)

(c) Use your answer to part (b) to work out the perimeter of the rectangle.

Perimeter is the distance around the rectangle.

Perimeter $= 4x + 1 + x + 2x + 12 + x$

$= 8x + 13$

Substitute $x = 5.5$

$= (8 \times 5.5) + 13$

$= 44 + 13$

$= 57$

57 cm

(1)

(Total for Question 12 is 5 marks)

13 (a) Simplify $5 + 2 - 4cd$

$7 - 4cd$

(1)

(b) Simplify $4c + 3d - 2c + 2d$

$2c + 5d$

(2)

(c) Simplify $x \times x \times x$

x^3

(1)

(d) Simplify $3q \times 2r$

$6qr$

(1)

(e) Factorise $5x + 10$

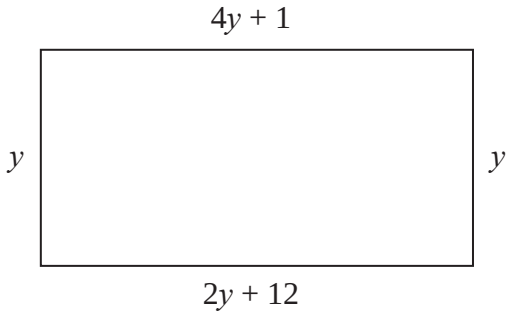
$5(x + 2)$

(1)

(Total for Question 13 is 6 marks

14

Diagram **NOT** accurately drawn



The diagram shows a rectangle.

All the measurements are in centimetres.

(a) Explain why $4y + 1 = 2y + 12$

Opposite sides of a rectangle are equal.

(1)

(b) Solve $4y + 1 = 2y + 12$

$$4y - 2y = 12 - 1$$
$$2y = 11$$
$$y = 5\frac{1}{2}$$

$y =$ $5\frac{1}{2}$

(2)

(c) Use your answer to part (b) to work out the perimeter of the rectangle.

Perimeter is the sum of the sides.

$4y + 1 + y + 2y + 12 + y$

$= 8y + 13$

$8y + 13$ cm

(2)

(Total for Question 14 is 5 marks)

15 (a) Simplify $5ab + 2ab - 4ab$

$= 3ab$

.....3ab.....

(1)

(b) Simplify $4a + 3b - 2a + 2b$

$= 2a + 5b$

.....2a + 5b.....

(2)

(c) Simplify $n \times n \times n$

$= n^3$

.....n^3.....

(1)

(d) Simplify $3m \times 2q$

$= 6mq$

.....6mq.....

(1)

(e) Factorise $5n + 10$

$= 5(n + 2)$

.....5(n + 2).....

(1)

(Total for Question 15 is 6 marks)