

1MA1 Foundation themed papers: Expand and factorise, and solve quadratics

Write your name here	
Surname	Other names
Centre Number	Candidate Number
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Pearson Edexcel Level 1/Level 2 GCSE (9–1)	
Mathematics	
Expand and factorise, and solve	
Quadratics	
Foundation Tier	Paper Reference 1MA1
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.	Total Marks
	<input type="text"/>

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.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **52**. There are **19** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- 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.



1 (a) Expand $5(2m - 3)$

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.....
(1)

(b) Factorise $3n + 12$

.....
(1)

(Total for Question 1 is 2 marks)



2 Expand $4e(e + 2)$

.....
(Total for Question 2 is 2 marks)

3 (a) Factorise $4m + 12$

.....
(1)

expression	equation	formula	identity
inequality	term	factor	multiple

(b) Choose two words from the box above to make this statement correct.

$5y$ is a in the $3x + 5y$
(2)

(Total for Question 3 is 3 marks)

4 Factorise fully $9b - 3b^2$

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.....

(Total for Question 4 is 2 marks)



5

$$x - 1 = 2$$

Work out the value of $2x^2$

.....

(Total for Question 5 is 3 marks)

6 (a) Expand and simplify $(x + 5)(x - 9)$

.....

(2)

(b) Factorise fully $9x^2 + 6x$

.....

(2)

(Total for Question 6 is 4 marks)

7 Expand and simplify $5(p + 3) - 2(1 - 2p)$

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.....
(Total for Question 7 is 2 marks)

8 (a) Factorise $5 - 10m$

.....
(1)

(b) Factorise fully $2a^2b + 6ab^2$

.....
(2)

(Total for Question 8 is 3 marks)

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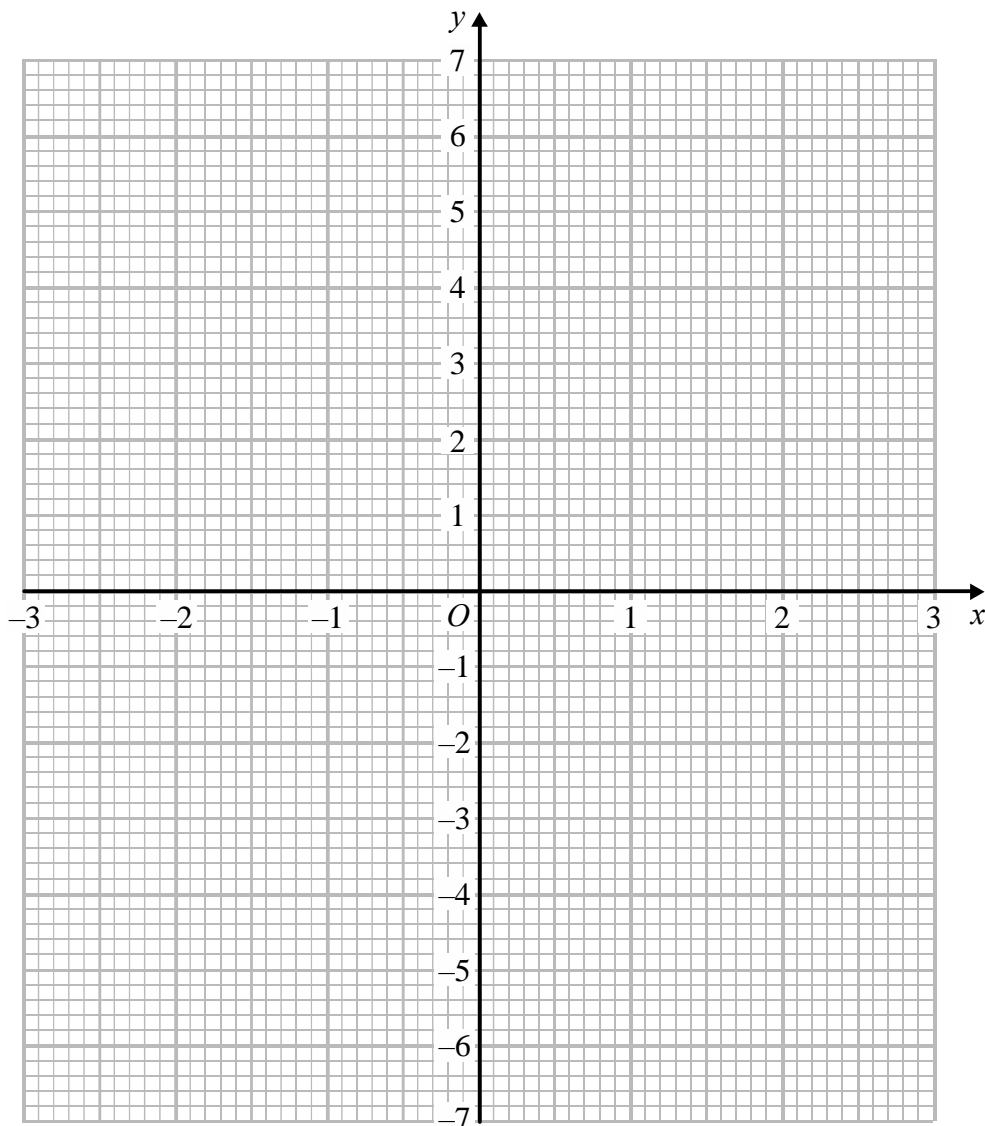
9 (a) Complete the table of values for $y = x^2 - x - 6$

x	-3	-2	-1	0	1	2	3
y	6			-6			

(2)

(b) On the grid, draw the graph of $y = x^2 - x - 6$ for values of x from -3 to 3.

(2)



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(c) Use your graph to find estimates of the solutions to the equation $x^2 - x - 6 = -2$

.....
(2)

(Total for Question 9 is 6 marks)



10 Expand $6(2m - 3)$

.....
(Total for Question 10 is 1 marks)

11 Expand $2x(3 - x)$

.....
(Total for Question 11 is 1 marks)

12 (a) Factorise $x^2 - 169$

.....
(1)

(b) Expand and simplify $(3x + 2)(2x - 1)$

.....
(2)

(Total for Question 12 is 3 marks)

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13 Expand and simplify $(x + 3)(x - 1)$

.....
(Total for Question 13 is 2 marks)



14 Factorise $x^2 - 16$

.....
(Total for Question 14 is 1 mark)

15 Factorise $x^2 + 3x - 4$

.....
(Total for Question 15 is 2 marks)

16 (a) Expand and simplify $(5x + 2)(2x - 3)$

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.....
(2)

(b) Factorise $x^2 + 4x + 3$

.....
(2)

(Total for Question 16 is 4 marks)

17 (a) Solve $2x^2 = 72$

.....
(2)

(b) Expand and simplify $(2x + 1)(3x - 2)$

.....
(2)

(c) Factorise $x^2 + 6x + 9$

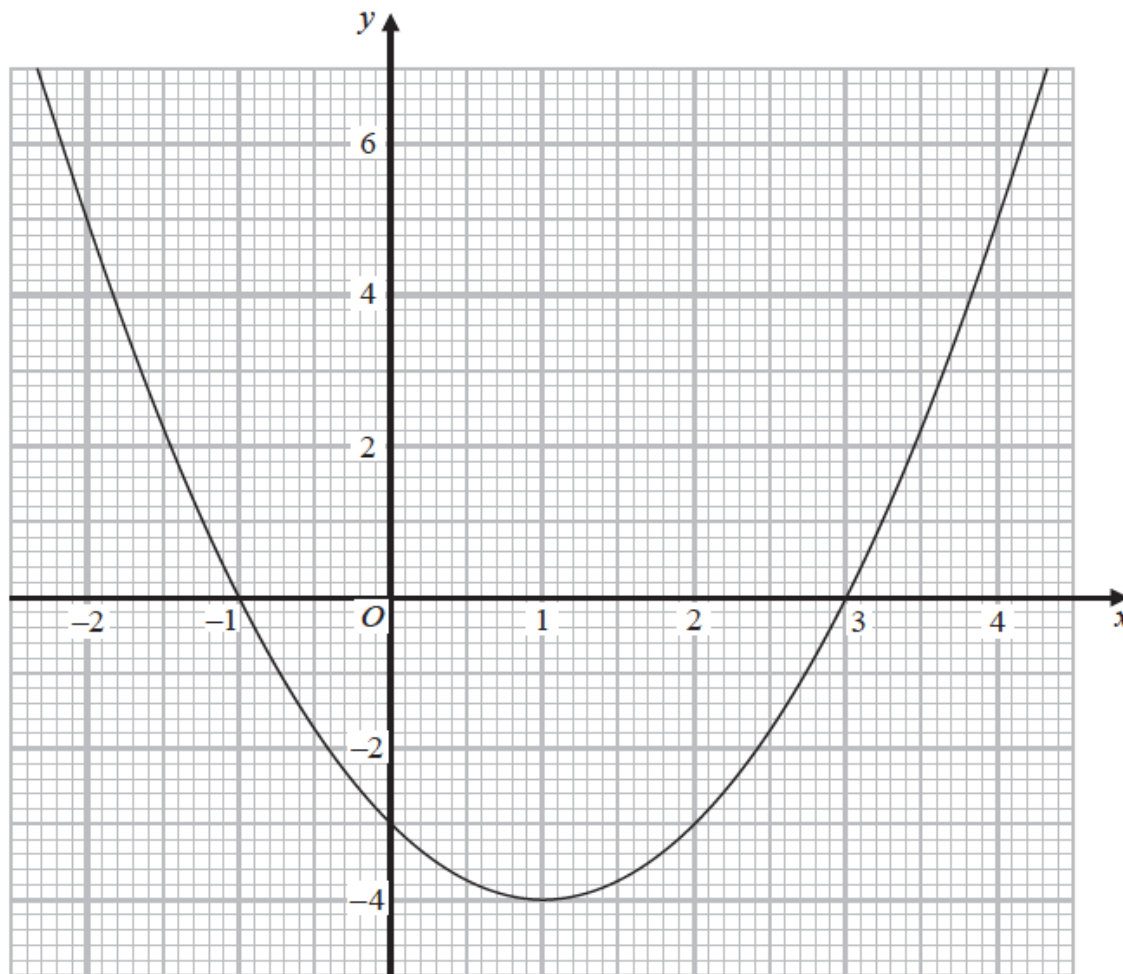
.....
(1)

(Total for Question 17 is 5 marks)



18 Here is the graph of $y = x^2 - 2x - 3$

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(a) Write down the coordinates of the turning point on the graph of $y = x^2 - 2x - 3$

(.....,)
(1)

(b) Use the graph to find the roots of the equation $x^2 - 2x - 3 = 0$

.....
(2)

(Total for Question 18 is 3 marks)

19 Solve $x^2 + 5x - 24 = 0$

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.....
(Total for Question 19 is 3 marks)

TOTAL MARKS FOR PAPER: 52