

GCSE Mathematics (1MA1) – Foundation Tier Paper 2F

Please note that this mark scheme is not the one used by examiners for making scripts. It is intended more as a guide to good practice, indicating where marks are given for correct answers. As such, it doesn't show follow-through marks (marks that are awarded despite errors being made) or special cases.

It should also be noted that for many questions, there may be alternative methods of finding correct solutions that are not shown here – they will be covered in the formal mark scheme.

NOTES ON MARKING PRINCIPLES

Guidance on the use of codes within this mark scheme

M1 – method mark. This mark is generally given for an appropriate method in the context of the question. This mark is given for showing your working and may be awarded even if working is incorrect.

P1 – process mark. This mark is generally given for setting up an appropriate process to find a solution in the context of the question.

A1 – accuracy mark. This mark is generally given for a correct answer following correct working.

B1 – working mark. This mark is usually given when working and the answer cannot easily be separated.

C1 – communication mark. This mark is given for explaining your answer or giving a conclusion in context supported by your working.

Some questions require all working to be shown; in such questions, no marks will be given for an answer with no working (even if it is a correct answer).

Question 1 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	0.07	1	This mark is given for the correct answer only

Question 2 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	42 or 48		This mark is given for the correct answer only

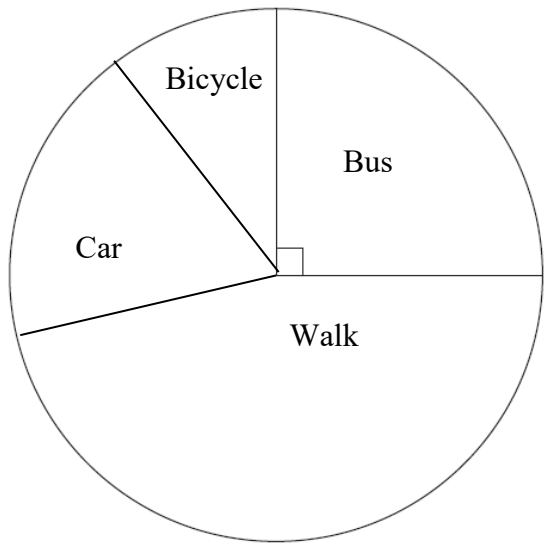
Question 3 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$15fg$	1	This mark is given for the correct answer only
(b)	t^2	1	This mark is given for the correct answer only
(c)	$\frac{1}{2}(2n + 4n) = n + 3n = 4n$	1	This mark is given for the correct answer only

Question 4 (Total 6 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$4 \times 125 = 500$ or $2 \times 120 = 340$ or $3 \times 135 = 405$	1	This mark is given for finding the total weight of one type of fruit eg
	$1785 - (500 + 340 + 405) = 540$	1	This mark is given for finding the total weight of the oranges
	$540 \div 90 = 6$	1	This mark is given for the correct answer only
(b)(i)	$15 \times 75 = 1125$ or $1000 \div 75 = 13.333\dots$	1	This mark is given for finding the weight of 15 tomatoes or finding how many tomatoes would be in 1 kg
	No, she will get fewer than 15 tomatoes	1	This mark is given for a correct statement supported by working
(b)(ii)	Yes, she could if a tomato weighed 66g or less	1	This mark is given for a correct statement supported by working

Question 5 (Total 6 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$60 - 27 = 33$	1	This mark is given for finding the number of students who did not walk to school
	$\frac{33}{60}$	1	This mark is given for the answer shown or an equivalent fraction
(b)	$\frac{27}{60} \times 360 = 162^\circ,$ $\frac{12}{60} \times 360 = 72^\circ,$ $\frac{6}{60} \times 360 = 36^\circ$	1	This mark is given for finding the angle for at least one sector
		1	This mark is given for drawing at least one sector accurately
		1	This mark is given for an accurately drawn pie chart
			1

Question 6 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{3}{7}$	1	This mark is given for the answer shown or an equivalent fraction
(b)	3 : 1	1	This mark is given for the answer shown or an equivalent ratio

Question 7 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	11, 13, 17, 19; 23, 29	1	This mark is given for listing any of the numbers 11, 13, 17, 19, 23, 29 as prime numbers
	No; 11, 13, 17 and 19 are between 10 and 20, and 23 and 29 are between 20 and 30	1	This mark is given for the correct conclusion with supporting lists

Question 8 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	The vertical scale is not linear	1	This mark is given for a correct comment
(b)	The tend is upwards	1	This mark is given for a correct comment

Question 9 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	5.5 cm	1	This mark is given for accurately measuring the distance between Backley and Cremford (within the range 5.3cm to 5.7 cm)
	2.75	1	The mark is given for a correct answer in the range 2.65 to 2.85
(b)	130°	1	This mark is given for a correct measurement in the range 128 – 132

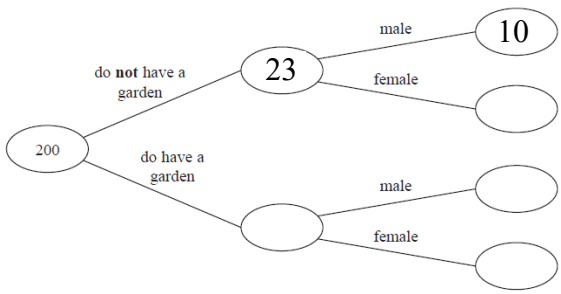
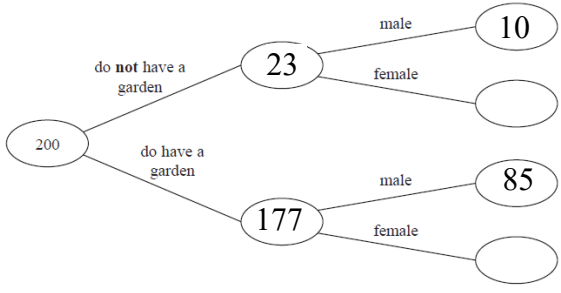
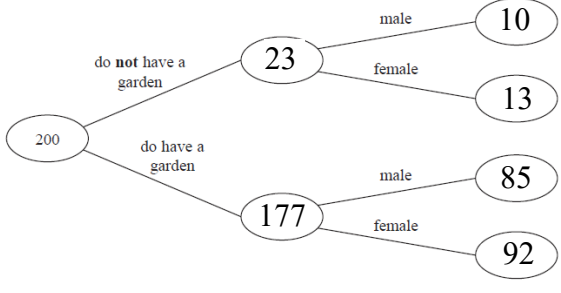
Question 10 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	12	1	This mark is given for the correct area
	cm ²	1	This mark is given for the correct units
(b)	Kite	1	This mark is given for the correct answer only

Question 11 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(13 \times 5) + 35 = 100$ $25 \times 20 = 100$	1	This mark is given for finding the total entry fees or the total membership fees
	250 : 100 : 500	1	This mark is given for finding an unsimplified ratio
	5 : 2 : 10	1	This mark is given for the correct answer only

Question 12 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		1	This mark is given for two correct frequencies in the diagram
		1	This mark is given for 4 correct frequencies in the diagram
		1	This mark is given for a fully correct frequency tree
(b)		1	This mark is given for either a numerator of 13 or a denominator of 23
	$\frac{13}{23}$	1	This mark is given for the correct answer only

Question 13 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	17×46 $266 \div 35$	1	This mark is given for a method to find comparable amounts
	$17 \times 46 = 782$ $266 \div 35 = 760$	1	This mark is given for finding comparable amounts
	Ellie's hourly rate is £7.82 which is greater than Reaze's hourly rate of £7.60	1	This mark is given for showing Ellie's hourly rate is the larger with supporting working

Question 14 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$a = 1, b = 3, \text{ then } 2 \times (1 + 3) = 8$	1	This mark is given for choosing two odd numbers and working out $2(a + b)$
	$8 \div 4 = 2, \text{ so } 8 \text{ is a multiple of } 4$	1	This mark is given for a correct statement
(b)	$a + b$ is even, $2a$ and $2b$ are even	1	This mark is given for a correct statement
	$a + b$ is always multiple of 2, so $2(a + b)$ is always a multiple of 4	1	This mark is given for a correct conclusion

Question 15 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$750 \div 0.5 = 1500$	1	This mark is given for finding out how many litres of oil Mr Page bought in November
	$1000 + 1500 - 600 = 1900$	1	This mark is given for finding out how many litres of oil Mr Page bought in November
	$0.50 \times 1.04 = 0.52$	1	This mark is for finding out the cost of a litre of oil in February
	0.52×1900	1	This mark is given for a method to find out how much Mr Page paid in February
	988	1	This mark is given for the correct answer only

Question 16 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$5x - 6 = 3x - 3$	1	This mark is given for expanding brackets
	$5x - 6 - 3x = -3$ $2x - 6 = -3$	1	This mark is given for isolating x on one side of the equation
	$2x = 3$ $x = 1\frac{1}{2}$	1	This mark is given for the correct answer only

Question 17 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$5.64 \div 12 = 0.47$	1	This mark is given for finding the cost of one bottle
	$50 - 47 = 3$	1	This mark is given for finding the profit on the sale of one bottle
	$\frac{3}{47} \times 100 = 6.4$ (to one decimal place)	1	This mark is given for the correct answer only

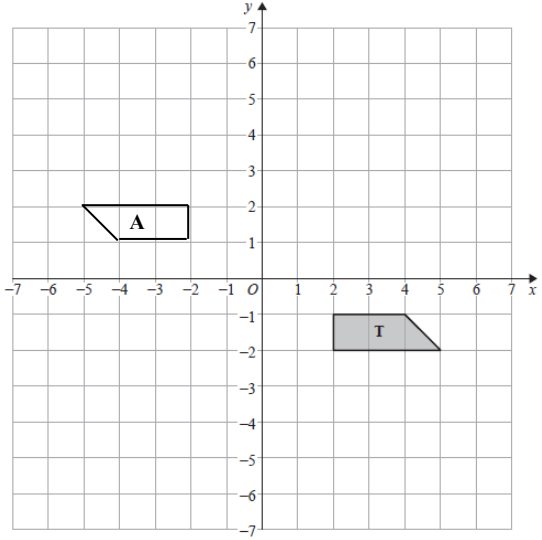
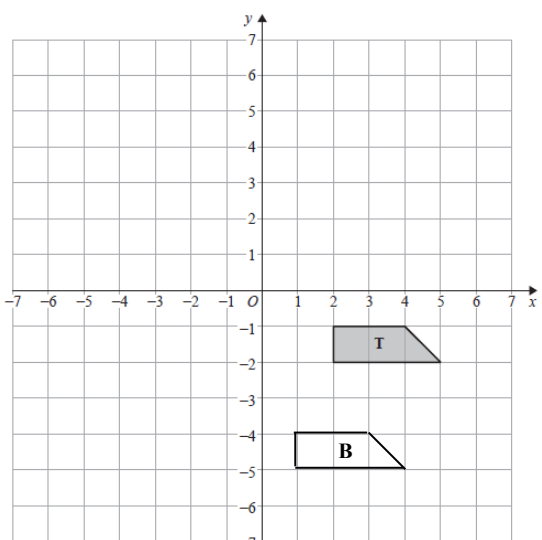
Question 18 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\pi \times 80 = 251.327\dots$	1	This mark is given for finding the length of the circumference of the circle
	$251.327 \div 8 = 31.4\dots$	1	This mark is given for the correct answer only
(b)	No, the mean distance stays the same because the total distance and the number of points stays the same	1	This mark is given for a correct comment

Question 19 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$B : Y = 2 : 1$	1	This mark is given for a correct ratio for the blue and yellow cubes
	$B : Y : G = 2 : 1 : 8$	1	This mark is given for a correct ratio for the blue, yellow and green cubes
	$\frac{1}{2+1+8} = \frac{1}{11}$	1	This mark is given for the answer shown or an equivalent fraction

Question 20 (Total 2 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
		1	This mark is given for a shape labelled A with coordinates $(-2, 1)$, $(-4, 1)$, $(-2, 2)$ and $(-5, 2)$
		1	This mark is given for a shape labelled B with coordinates $(1, -4)$, $(3, -4)$, $(1, -5)$ and $(4, -5)$

Question 21 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	6	1	This mark is given for the correct answer only
(b)	5	1	This mark is given for the correct answer only
(c)	$100^a = 10^{2a}$, $1000^b = 10^{3b}$	1	This mark is given for writing 100^a or 1000^b as a power of 10
	$10^{2a} \times 10^{3b} = 10^{2a+3b}$ thus $w = 2a + 2b$	1	This mark is given for a correct conclusion

Question 22 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$7.5^2 - 6^2$	1	This mark is given for a method to find the third length of the right angled triangle shown
	$7.5^2 - 6^2 = 56.25 - 36 = 20.25$ $\sqrt{20.25} = 4.5$	1	This mark is given for finding the third length of the right angled triangle shown
	$24 - 4.5 - 10 = 9.5$	1	This mark is given for finding a length for a right angled triangle to be able to calculate angle CDA
	$\tan CDA = \frac{6}{9.5}$	1	This mark is given for finding the tangent of the angle CDA
	angle $CDA = 32.3^\circ$	1	This mark is given for an answer in the range 32.2–32.3

Question 23 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\sqrt{\frac{1.0654058}{0.1402633}} = 7.595756$	1	This mark is given for any of 1.0654058, 1.402633 or 7.595756 seen
	2.7560399...	1	This mark is given for the correct answer only
(b)	2.76	1	This mark is given for the correct answer only

Question 24 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$2x^2 = 72, x^2 = 36$ $x = \sqrt{36}$ $+6, -6$	2	These marks are given for a pair of solutions (One mark is given for either +6 or -6)
(b)	$6x^2 - 4x + 3x - 2$	1	This mark is give for at least three correct terms
	$6x^2 - x - 2$	1	This mark is given for the correct answer only
(c)	$(x + 3)^2$ or $(x + 3)(x + 3)$	1	This mark is given for the correct answer only