GCSE Mathematics (1MA1) – Foundation Tier Paper 3F

Mock Set 3 student-friendly mark scheme

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
	$1 - \frac{3}{5} = \frac{2}{5}$	B1	This mark is given for the correct answer (or an equivalent fraction)

Question 2 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$350 \div 100 = 3.5$	B1	This mark is given for the correct answer (or an equivalent fraction)

Question 3 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{9}{30}$	B1	This mark is given for the correct answer only

Question 4 (Total 1 mark)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$-7 - 5 = -12$	B1	This mark is given for the correct answer only

Question 5 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	08 06 – 07 46 = 20 minutes	B1	This mark is given for the correct answer only
(b)	First train from Horwich to Leyland leaves at 08 39 Arrives in Leyland at 09 12	B1	This mark is given for the correct answer (or an equivalent time using correct notation)
(c)	08 53	B1	This mark is given for the correct answer (or an equivalent time using correct notation)

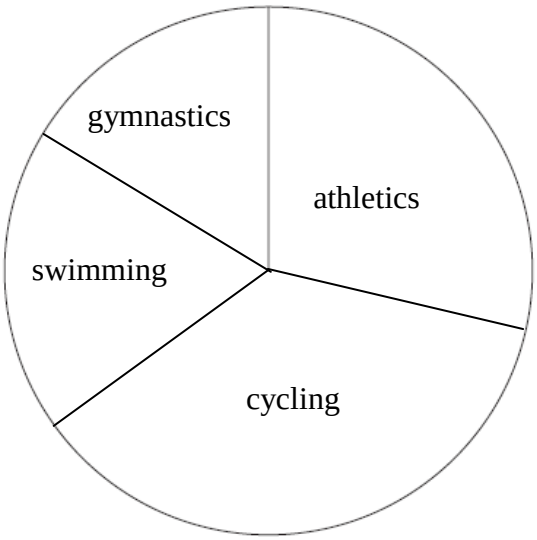
Question 6 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$319 \div 2.2$	M1	This mark is given for a method to change lb to kg
	145	A1	This mark is given for the correct answer only

Question 7 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Mary: $264 \div 6 = 41$	P1	This mark is given for a process to find out how many green apples Mary picks
	Bianka: $150 \times \frac{28}{100} = 42$	P1	This mark is given for a process to find out how many green apples Bianka picks
	Steve: $340 \times \frac{15}{100} = 51$	P1	This mark is given for a process to find out how many green apples Steve picks
	Steve picks the most apples (51)	C1	This mark is given for a correct conclusion supported by working

Question 8 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	athletics = $\frac{13}{45} \times 360 = 104°$ cycling = $\frac{17}{45} \times 360 = 136°$ swimming = $\frac{8}{45} \times 360 = 64°$ gymnastics = $\frac{7}{45} \times 360 = 56°$	M1	This mark is given for a method to find the angles in the pie chart for each sport
		A1	This mark is given for a pie chart with all angles drawn correctly (within 2°)
		B1	This mark is given for all sectors labelled properly

Question 9 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$(6 \times 6) + 7 = 36 + 7 = 43$	B1	This mark is given for the correct answer only
(b)	$(-4 \times 6) + 7 = -24 + 7 = -17$	B1	This mark is given for the correct answer only
(c)	(input $\times$ 6) + 7 = 79 (input $\times$ 6) = 72	M1	This mark is given for a method to find the input
	input = 12	A1	This mark is given for the correct answer only

Question 10 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	100g of strawberries costs $\frac{4.10}{5} = 0.82$ 300g of strawberries costs $3 \times 0.82 = 2.46$	P1	This mark is given for a method to find the cost of 300g of strawberries
	400g of raspberries costs $7.46 - 2.46 = 5.00$	P1	This mark is given for a method to find the cost of 400g of raspberries
	200g of strawberries costs 1.64 200g of raspberries costs 2.50	P1	This mark is given for a method to find the cost of 200g of strawberries and 200g of raspberries
	$1.64 + 2.50 = 4.14$	A1	This mark is given for the correct answer only

Question 11 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	Translation, $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$	B1	This mark is given for the correct transformation
		B1	This mark is given for the correct vector

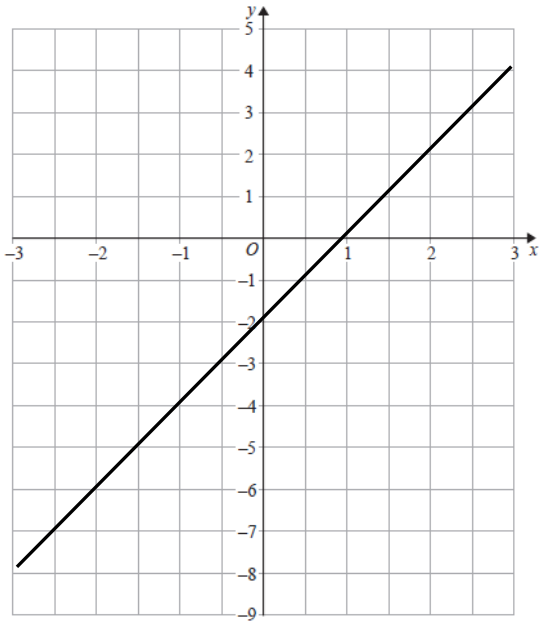
Question 12 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(i)	$2 \times (7^2 - 2) = 94$	B1	This mark is given for brackets correctly placed
(ii)	$16 \div (2 + 6) + 2 = 4$	B1	This mark is given for brackets correctly placed

Question 13 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	$15 - 7 = 8$ $22 - 9 = 13$	M1	This mark is given for a method to find the missing lengths
	$\frac{1}{2} \times 8 \times 13 = 52$ $15 \times 9 = 135$	M1	This mark is given for a method to find the area of the triangle and the rectangle
	$52 + 135 = 187$	A1	This mark is given for the correct answer only

Question 14 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B1	This mark is given for a correct table of values for x and y
		B2	These marks are given for a line drawn through a correct set of points (B1 is given for a line drawn with a gradient of 2)

x	–3	–2	–1	0	1	2	3
y	–8	–6	–4	–2	0	2	4

Question 15 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$\frac{4.36 + 2.8^3}{6.8 - 5.42} = \frac{26.312}{1.38}$	M1	This mark is given for 26.312 or 1.38 seen
	= 19.066667	A1	This mark is given for the correct answer only
(b)	19.1	B1	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
(a)	2	B1	This mark is given for the correct answer only
(b)	$(0 \times 6) + (1 \times 13) + (2 \times 12) + (3 \times 7) + (4 \times 2)$	M1	This mark is given for a method to find the total number of children
	= 66	A1	This mark is given for the correct answer only

Question 17 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$2a^2 + 14a$	B1	This mark is given for the correct answer only
(b)	$7(2b - 1)$	B1	This mark is given for the correct answer only
(c)	$9c - 54 = 63$ $9c = 113$ $c = \frac{113}{9}$	M1	This mark is given for a correct method to find c
	$c = 13$	A1	This mark is given for the correct answer only
(d)	$3 \times 4 \times y^2 \times y^3 = 12y^5$	B1	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
	$5700 \times 0.12 = 684$	P1	This mark is given for a process to find the amount of the deposit
	$5700 - 684 = 5016$	P1	This mark is given for a process to find the amount to be paid in instalments
	$5016 \div 15 = 334.40$	A1	This mark is given for the correct answer only

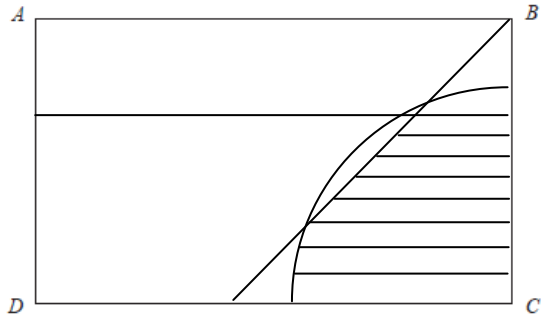
Question 19 (Total 5 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	168 2×84 $2 \times 2 \times 42$ $2 \times 2 \times 2 \times 21$	M1	This mark is given for a method to find the prime factors (at least two steps seen)
	2, 2, 2, 3, 7	M1	This mark is given for a correct list of factors seen
	$2^3 \times 3 \times 7$ or $2 \times 2 \times 2 \times 3 \times 7$	A1	This mark is given for a correct answer only
(b)	2, 3, 4, 6, 7, 8, 12, 14, 21, 24, 28, 42, 56, 84 2, 3, 4, 6, 9, 10, 12, 15, 18, 20, 30, 45, 60, 90 or $168 = 2 \times 2 \times 2 \times 3 \times 7$ $180 = 2 \times 2 \times 3 \times 3 \times 5$	M1	This mark is given for lists of factors of 168 and 180
	$2 \times 2 \times 3 = 12$	A1	This mark is given for the correct answer only

Question 20 (Total 3 marks)

Part	Working an or answer examiner might expect to see	Mark	Notes
	Eric: 36.4 miles in 48 minutes $\frac{36.4}{48} \times 60 = 45.5$ miles per hour	P1	This mark is given for a process to find out Eric's average speed per hour
	Geraldine: 65.2 miles in 85 minutes $\frac{65.2}{85} \times 60 = 46.023\ldots$ miles per hour	P1	This mark is given for a process to find out Geraldine's average speed per hour
	Geraldine drove at the greater average speed	C1	This mark is given for a correct conclusion supported by working

Question 21 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
		B1	This mark is given for a correct arc of radius 4.5 cm, centred on the point *C*
		B1	This mark is given for a correct angle bisector drawn at angle *ABC*
		B1	This mark is given for a line drawn 2 cm form *AB*
		C1	This mark is given for the correct region shaded

Question 22 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	<table><tr><td>**Colour**</td><td>red</td><td>yellow</td><td>green</td></tr><tr><td>**Probability**</td><td>$\frac{1}{11}$</td><td>$\frac{3}{11}$</td><td>$\frac{7}{11}$</td></tr></table>	M1	This mark is given for at least one probability with a denominator of 11 shown
		A1	This mark is given for a completely correct table
(b)	$68 \div \frac{3}{11}$	P1	This mark is given for as process to find the total number of counters
	249	A1	This mark is given for the correct answer only (accept 250)

Question 23 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	Maryam's second line should contain +4 rather than –4	C1	This mark is given for a correct explanation
(b)	Josh's reasoning gives $+6x$ rather than $-6x$	C1	This mark is given for a correct explanation
(c)	Shona's line should have a positive y-intercept rather than the negative one shown	C1	This mark is given for a correct explanation

Question 24 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$4.5^2 + 7^2$	P1	This mark is given for a process using Pythagoras to find the length KM
	$\sqrt{(4.5^2 + 7^2)} = \sqrt{69.25} = 8.32\ldots$	P1	This mark is given for finding the length KM
	$\sin KLM = \dfrac{\sqrt{69.25}}{15} = 0.55477\ldots$	P1	This mark is given for a process to find the sine of angle KLM
	$\angle KLM = 33.7$	A1	This mark is given for the correct answer only

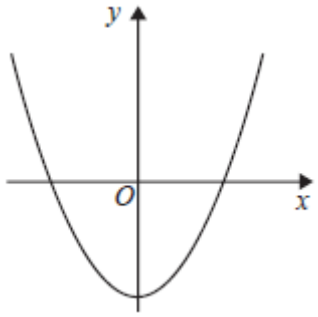
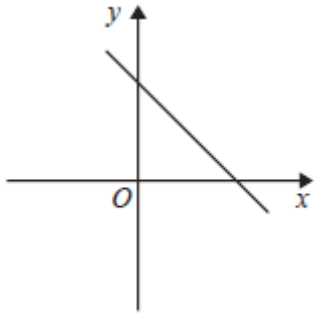
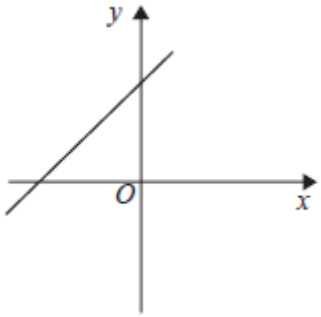
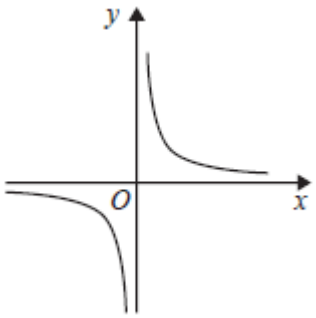
Question 25 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$235\,000 \times 0.96 = 225\,600$	M1	This mark is given for a method to find the value of the house after one year
	$225\,600 \times 1.06^2$	M1	This mark is given for a method to find the value of the house at the end of three years
	253 484.16	A1	This mark is given for the correct answer only

Question 26 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	26 730	B1	This mark is given for the correct answer only
(b)	7.04×10^{-2}	B1	This mark is given for the correct answer only
(c)	$\frac{4.515}{3.01} \times \frac{10^6}{10^{-2}} = 1.5 \times (10^{6--2})$	M1	This mark is given for 1.5 of 10^n, where $n \neq 8$
	1.5×10^8	A1	This mark is given for the correct answer only

Question 27 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	<table><tr><th>Equation</th><th>Letter of graph</th></tr><tr><td>$y = x^2 - 7$</td><td>  </td></tr><tr><td>$y = 3 - 2x$</td><td>  </td></tr><tr><td>$y = 2x + 3$</td><td>  </td></tr><tr><td>$y = \frac{1}{x}$</td><td>  </td></tr></table> B, D, A, C	B2	These two marks are given for all graphs correctly matched (B1 is given for 2 correctly matched)