

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

### Summer 2023 shadow paper 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
	$\frac{64}{100} = 0.64$	B1	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
	$\frac{7}{10}$	B1	This mark is given for the correct answer only

**Question 3 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	1.5	B1	This mark is given for the correct answer only

**Question 4 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	2	B1	This mark is given for the correct answer only

**Question 5 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	4	B1	This mark is given for the correct answer only

**Question 6 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: The diameter should be labelled as the circumference The diameter label is wrong	B1	This mark is given for a correct explanation

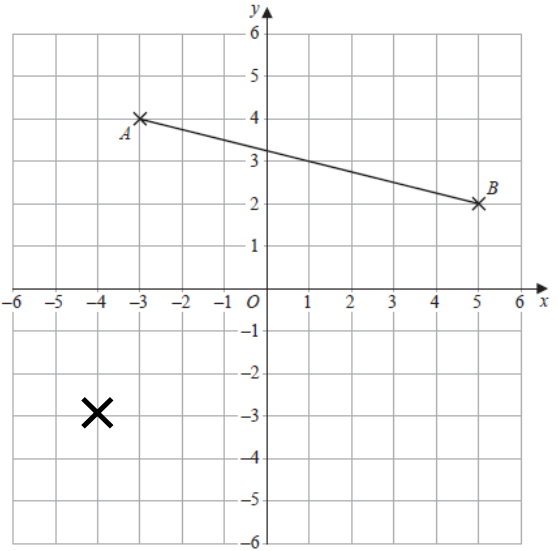
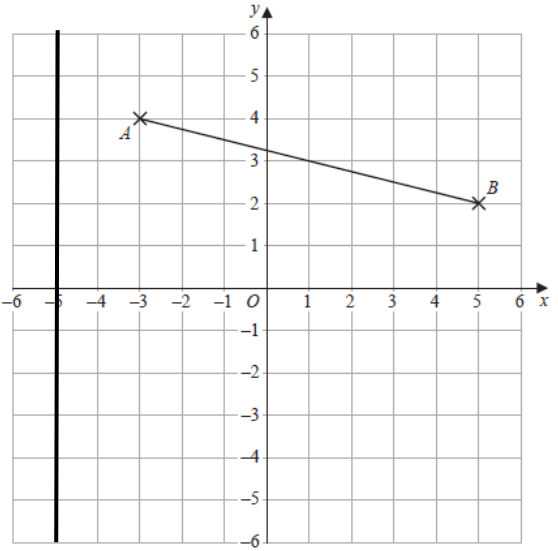
**Question 7 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	(Three from) 1, 2, 3, 5, 6, 10, 15, 30	B2	These marks are given for at least three different factors from 1, 2, 3, 5, 6, 10, 15 and 30 (B1 is given for any two factors given)

**Question 8 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$360 - 55$	M1	This mark is given for a method to find the size of angle $x$
	305	A1	This mark is given for the correct answer only
(b)	For example: $55^\circ$ is an acute angle A reflex angle is one greater than $180^\circ$ $55^\circ$ is less than $180^\circ$	C1	This mark is given for a correct explanation

**Question 9 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$(-3, 4)$	B1	This mark is given for the correct answer only
(b)		B1	This mark is given for the point $(-4, -3)$ marked on the graph
(c)	$(1, 3)$	B1	This mark is given for the correct answer only
(d)		B1	This mark is given for the line with equation $x = -5$ marked on the graph

**Question 10 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$8 \times 5 = 40$ or $4 \times 3 = 12$ or $3 \div 2 = 1.50$	P1	This mark is given for an initial process to determine whether Jenny has enough money to buy the bowls
	$4 \times 1.50 = 6$	P1	This mark is given for a second process to determine the cost of the small bowls using the offer
	$40 + 6 = 46$	P1	This mark is given for a full process to find the cost of the bowls using the offer
	No (Jenny does not have enough money)	C1	This mark is given for a correct conclusion supported by valid working

**Question 11 (Total 6 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$800 - 262$	P1	This mark is given for a process to find out how many tickets were sold
	538	A1	This mark is given for the correct answer only
(b)	20, 30, 300 or 400 seen	P1	This mark is given for using appropriate estimates
	$(300 \times 20) + (400 \times 30)$	P1	This mark is given for a process to estimate the cost of the ticket sales
	$6000 + 12000 = 18000$	A1	This mark is given for a correct answer using rounded values
(c)	Underestimate For example: the total money paid will be more since all the values were rounded down	C1	This mark is given for a correct answer with a valid reason given

**Question 12 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{13+5+6+11+3+7+6+5}{8} = \frac{56}{8}$	M1	This mark is given for a correct method to find the mean
	7	A1	This mark is given for the correct answer only

**Question 13 (Total 4 marks)**

Part	Working an or answer examiner might expect to see	Mark	Notes
(a)	$3h$	B1	This mark is given for the correct answer only
(b)	$-7b + 5b = -2b$ $4c - c = 3c$	M1	This mark is given for a method to simplify the expression
	$21 - 2b + 3c$	A1	This mark is given for a correct answer only
(c)	$3(3d - 2)$	B1	This mark is given for a correct answer only

**Question 14 (Total 5 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$100 - 67 = 33$	M1	This mark is given for the correct answer only
(b)	$\frac{3}{3+8} = \frac{3}{11}$	A1	This mark is given for the correct answer only (or an equivalent fraction)
(c)	$\frac{12}{100} \times 200 = 24$	P1	This method is given for a process to find the number of children who saw a play on Friday
	$\frac{1}{8} \times 240 = 30$	P1	This method is given for a process to find the number of children who saw a play on Saturday
	Yes (Karen is correct); more children saw a play on Saturday	C1	This mark is given for a correct conclusion supported by valid working

**Question 15 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{4 \times 11}{7 \times 12} = \frac{44}{84}$ or $\frac{1}{7} \times \frac{11}{3}$	M1	This mark is given for a method to multiply or simplify fractions
	$\frac{11}{21}$	A1	This mark is given for the correct answer only

**Question 16 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(60 \div 15) \times 80$ or $80 + 80 + 80 + 80$	M1	This mark is given for a method to find the amount of flour Helen needs
	320	A1	This mark is given for the correct answer only

**Question 17 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$200 - 52 - 73 = 75$	P1	This mark is given for a process to find the number of yellow and green counters
	$75 \div 3 = 25$	P1	This mark is given for a process to find the number of green counters
	$\frac{25}{200} \times 100$	P1	This mark is given for a process to find the percentage of green counters
	12.5	A1	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
	$7m$ or $32n$	M1	This mark is given for a method to find an expression for the number of lemons in a bag or the number of lemons in a crate
	$7m + 32n$	M1	This mark is given for a method to find a partially correct formula
	$A = 7m + 32n$	A1	This mark is given for the correct answer only

**Question 19 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$6n - 10$	B2	These marks are given for a fully correct answer (B1 is given for $6n$ or $-10$ shown)

**Question 20 (Total 3 marks)**

Part	Working an or answer examiner might expect to see	Mark	Notes
	For example: $462 \div 12$ <b>or</b> $4.62 \div 0.12 = 3\dots$	M1	This mark is given for a method to calculate the division <b>or</b> 3 identified as the first digit
	Digits 385 seen (for example, 3.85 or 0.385 or 385)	A1	This mark is given for a the digits 385 seen
	38.5	A1	This mark is given for the correct answer only



**Question 21 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$5 - 3 + \frac{3}{10} - \frac{2}{5} = 2 - \frac{1}{10}$ <p>or</p> $\frac{53}{10} - \frac{34}{10} = \frac{19}{10}$	M2	These marks are given for a fully correct method  (M1 is given for two fractions with a correct common denominator or for converting both to improper fractions)
	$1\frac{9}{10}$	A1	This mark is given for the correct answer only

**Question 22 (Total 4 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\sqrt[3]{64} = 4$	P1	This mark is given for a process to find the length of one side of the cube
	$4 \times 4 = 16$	P1	This mark is given for a process to find the area of one square side of the cube
	$6 \times 16$	P1	This mark is given for a process to find the total surface area of the cube
	96	A1	This mark is given for a correct answer only

**Question 23 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
		B2	These marks are given for a fully correct polygon with points plotted at the midpoints (2.5, 2), (7.5, 22), (12.5, 17), (17.5, 9), (22.5, 14)  (B1 is given for points plotted correctly but not joined by straight lines or points joined at correct heights within intervals, including plotting at end values or a correct polygon with one point incorrect or a correct polygon with first and last points joined directly)

**Question 24 (Total 5 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)		M1	This mark is given for correct numbers in one region
		M1	This mark is given for correct numbers in a second region
		A1	This mark is given for a fully correct Venn diagram
(b)	$\frac{5}{10}$	M1	This mark is given for $\frac{a}{10}$ , $0 < a < 10$ , or $\frac{5}{b}$ , where $b$ is an integer and $b > 5$
		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
(a)	For example: as age increases, weight increases	C1	This mark is given for a valid description of the relationship between age and weight
(b)		M1	This mark is given for a suitable line of best fit drawn <b>or</b> a point marked on the grid at $(x, 8.4)$ where $7 < x < 9$ <b>or</b> a horizontal line drawn from 5.8 across to $(x, 8.4)$ where $7 < x < 9$
		7.8	A1

**Question 26 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$375 \div \frac{15}{100}$ or $375 \div 0.15$	M1	This mark is given for a method to find the price of the console before the increase
	2500	B1	This mark is given for the correct answer only

**Question 27 (Total 3 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\text{area} = \frac{1500}{50} = 30$	P1	This mark is given a for a process to find the area of the base of the cylinder
	$\text{pressure} = \frac{120}{30}$	P1	This mark is given a for a process to find the pressure
	4	A1	This mark is given for the correct answer only

**Question 28 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$x = 6, y = -2$	B1	This mark is given for the correct answer only

**Question 29 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{5^3}{5}$ or $\frac{125}{5}$ or $5^2$	M1	This mark is given a method to simplify the expression
	25	A1	This mark is given for the correct answer only

**Question 30 (Total 1 mark)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\frac{\sqrt{3}}{2}$	B1	This mark is given for a correct answer only

**Question 31 (Total 2 marks)**

Part	Working or answer an examiner might expect to see	Mark	Notes
	$0.6 \times 0.3$	M1	This mark is given for a method to find the probability
	0.18	A1	This mark is given for a correct answer only