

Mark Scheme

Edexcel Foundation Mock Set A Paper 3

For Pearson Edexcel GCSE Mathematics (1MA1)

Foundation tier • Paper 3 (Calculator)

Total 80 marks

Key to the marks

M	Method mark: for a correct method or a correct part of a method.
P	Process mark: for a correct step in the process of solving a problem.
A	Accuracy mark: for a correct answer or value after a correct method or process.
B	Unconditional accuracy mark: no method needs to be seen.
C	Communication mark: for a fully correct statement or conclusion with no contradiction.
()	A mark in brackets, e.g. (B1), is an alternative partial mark when full marks are not given.
oe	Or equivalent.
cao	Correct answer only.
ft	Follow through from an earlier answer.
isw	Ignore subsequent working once the correct answer is seen.
awrt	Answer which rounds to.
sc	Special case.
dep	Dependent on the mark before it.
“ ”	A value in quotation marks, e.g. “12” $\times$ 5, must come from a correct method, but may contain an arithmetic slip.

Give credit for any correct method, including ones not listed here. A correct answer with no working scores full marks unless the question asks for working (for example “show that” or “you must show your working”). If a correct answer is followed by further work that does not change it, ignore the further work. Probabilities must be written as fractions, decimals or percentages.

Indicative grade boundaries

Grade	5	4	3	2	1
Whole set: Papers 1, 2 and 3 (out of 240)	179	147	108	69	30
This paper alone, rough guide (out of 80)	60	49	36	23	10

Indicative only. Based on the real Pearson Edexcel boundaries for June 2023 to June 2026 (median), adjusted for how this set compares in difficulty with the real papers. Grades are awarded on the total for all three papers; the single-paper guide is about one third of the set boundaries.

These are estimates to help you judge performance on a practice paper; real boundaries change every year.

Marking guidance

Q	Answer	Marks	Guidance
1	60 408	B1	cao
2	13	B1	cao
3	$\frac{1}{4}, \frac{3}{5}, \frac{2}{3}$	B1	$\frac{1}{4}, \frac{3}{5}, \frac{2}{3}$ cao <i>Additional guidance:</i> Accept equivalent fractions or decimals in the correct order, e.g. 0.25, 0.6, 0.67. Do not accept the order reversed.
4	$7c$	B1	$7c$ cao <i>Additional guidance:</i> Accept $7 \times c$ or $c7$.
5	Any two of 1, 3, 5, 9, 15, 45, e.g. 5 and 9	B1	any two of 1, 3, 5, 9, 15, 45 <i>Additional guidance:</i> Ignore repeats. Any incorrect number scores B0.
6(a)	$m = 13$	B1	cao
6(b)	$k = 9$	B1	cao
Total for Question 6: 2 marks			
7(a)	190 hours	B1	cao
7(b)	Point at (July, 230), joined to June and August	B1	point plotted at (Jul, 230) $\pm \frac{1}{2}$ small square and joined to the points for June and August <i>Additional guidance:</i> Condone the joining lines missing if the point is correct and clearly shown.
7(c)	April and May	B1	April and May oe <i>Additional guidance:</i> Accept “Apr to May” oe. Do not accept a single month.
Total for Question 7: 3 marks			
8	18	B1	cao
9(a)	47 minutes	B1	cao
9(b)	The 07 37 bus from Bishop Monkton	P1	for a process to find the latest arrival time, e.g. 08 50 – 12 min = 08 38, or adding 12 minutes to an arrival time at Harrogate, e.g. 08 12 + 12 = 08 24 or 08 36 + 12 = 08 48
		P1	for identifying the bus arriving at 08 12 as the latest suitable bus, or for recognising that the bus arriving at 08 36 does not stop at Bishop Monkton
		C1	07 37 bus with supporting working

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Accept any clear identification of the bus, e.g. “the 07 25 from Ripon” or “the second bus” with supporting working. An answer of 08 00 or 08 36 scores P1 P0 C0 at most. Times may be written in 12-hour form, e.g. 7.37 am.
Total for Question 9: 4 marks			
10	CO, CS, FO, FS, HO, HS, TO, TS	B2 (B1	for all 8 correct combinations and no incorrect ones (ignore repeats) for at least 4 correct combinations) <i>Additional guidance:</i> Combinations may be written in full or with letters, in either order (e.g. OC for CO). Treat a pair of two wraps or two drinks as incorrect.
11	80 cm	P1 P1 A1	for a process to find the width or the length of one rectangle, e.g. $32 \div 8 (= 4)$, or 4 and 12 seen for a complete process to find the perimeter of the shape, e.g. $16 + 12 + 16 + 4 + 12 + 4 + 12 + 4$, or $3 \times 32 - 4 \times “4”$ cao <i>Additional guidance:</i> An answer of 96 (three whole perimeters) scores P0 P0 A0 unless 4 or 12 is seen. Lengths may be shown on the diagram.
12(a)	8 gallons	B1	answer in the range 7.8 to 8.2
12(b)	140 gallons	M1 A1	for a correct method to convert using a pair of readings from the graph, e.g. $630 \div 4.5 \times 10$ or $630 \div 4.5$, or “8” $\times 630 \div 36$ answer in the range 136 to 144 <i>Additional guidance:</i> Accept use of 1 gallon = 4.5 to 4.55 litres. Readings must be from the graph or a correct conversion factor.
Total for Question 12: 3 marks			
13	£312	P1 P1 A1	for a process to find the value of one part, e.g. $8 - 3 (= 5)$ and $390 \div “5” (= 78)$ for “78” $\times 4$ cao <i>Additional guidance:</i> $390 \div 15 \times 4 (= 104)$ scores P0 P0 A0. An answer of £1170 (the total) with “78” seen scores P1 P0 A0.
14(a)	Positive (correlation)	B1	positive

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Ignore “strong” or “weak”. Do not accept a relationship in words only, e.g. “longer fish are heavier”.
14(b)	30 cm and 1.4 kg	B1	30 cm and 1.4 kg <i>Additional guidance:</i> Accept (30, 1.4). Do not accept the values reversed.
14(c)	About 1.1 kg (from 1.0 to 1.2)	M1 A1	for a single straight line of best fit drawn that could be used, or a reading at 42 cm from their line answer in the range 1.0 to 1.2 <i>Additional guidance:</i> A correct answer in range with no line drawn scores M1 A1.
Total for Question 14: 4 marks			
15(a)	6.8 km	M1 A1	for $13.6 \times 50\,000$ (= 680 000) or for $50\,000 \div 100\,000$ (= 0.5) oe 6.8 oe <i>Additional guidance:</i> An answer of 680 000 with no units, or 680 000 cm, scores M1 A0.
15(b)	7.6 cm	B1	cao
Total for Question 15: 3 marks			
16	12°C	B1	cao
17	Yes. Credit costs £1597.50, which is 10.17% more than £1450	P1 P1 P1 C1	for a process to find the deposit, e.g. 1450×0.15 (= 217.5) for a process to find the total credit price, e.g. “217.5”+12 × 115 (= 1597.5) for a process to compare with 10%, e.g. “(1597.5)–1450)÷1450 × 100 (= 10.17 ...), or 1450×1.1 (= 1595), or 1450×0.1 (= 145) and “147.5” for Yes with correct figures, e.g. 10.17 ... %, or 1597.5 and 1595, or 147.5 and 145 <i>Additional guidance:</i> Accept 10.2% or better. Working out the extra as a percentage of the credit price ($147.5 \div 1597.5 \times 100 = 9.23 \dots$) scores P1 P1 PO C0. Comparing 12×115 (= 1380) with 1450 (ignoring the deposit) scores PO PO PO C0.
18	0.42, 0.425, $\frac{3}{7}$, 43%	B2	for 0.42, 0.425, $\frac{3}{7}$, 43% oe

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Q	Answer	Marks	Guidance
		(B1)	for three of the four numbers in the correct order, or for all four numbers converted correctly to the same form, e.g. 0.42, 0.425, 0.428 ..., 0.43) <i>Additional guidance:</i> Accept the numbers in their converted form, e.g. 0.42, 0.425, 0.428 ..., 0.43, as long as each number can be identified. Do not accept the order reversed.
19(a)	32.2 seconds	P1 P1 A1	for 32.45×4 (= 129.8) for "129.8" – (31.6 + 33.1 + 32.9) cao
19(b)	The mean increases (by 0.1 seconds, to 32.55 seconds)	C1	for the mean increases oe, e.g. the mean goes up by 0.1 or the new mean is 32.55 <i>Additional guidance:</i> Do not accept "it changes" without a direction. Ignore an incorrect amount if "increases" is given.
Total for Question 19: 4 marks			
20	No. The mass is 1532.16 g = 1.53 kg, which is more than 1.5 kg	M1 M1 C1	for $9.5 \times 6 \times 3.2$ (= 182.4) for "182.4" $\times$ 8.4 (= 1532.16) for No with 1.53 kg (or better), or with 1532 g (or better) and 1500 g <i>Additional guidance:</i> The units must be clear in the comparison: "No, 1532 > 1.5" scores M1 M1 C0. Dividing, e.g. $182.4 \div 8.4$, scores M1 M0 C0.
21(a)	$4n - 13$	B2 (B1)	for $4n - 13$ oe for $4n + d$ where d is an integer and $d \neq -13$
21(b)	No. $4n - 13 = 81$ gives $n = 23.5$, which is not a whole number	M1 C1	for a method, e.g. $4n - 13 = 81$ or $(81 + 13) \div 4$ or terms continued to show 79 and 83 for No with a correct reason, e.g. $n = 23.5$ is not an integer, or 79 and 83 are consecutive terms <i>Additional guidance:</i> ft their n th term from (a) for M1 only.
Total for Question 21: 4 marks			
22(a)	A only: 9, 15, 18; $A \cap B$: 3, 6, 12; B only: 1, 2, 4, 8; outside: 5, 7, 10, 11, 13, 14, 16, 17	B3	for a fully correct Venn diagram

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Q	Answer	Marks	Guidance
		(B2)	for at least 14 of the 18 numbers correctly placed, with no repeats)
		(B1)	for 3, 6 and 12 only in the intersection, or for <i>A</i> correct, or for <i>B</i> correct) <i>Additional guidance:</i> Numbers outside the circles may be anywhere inside the rectangle. Repeated numbers count as incorrect placements.
22(b)	$\frac{3}{18} = \frac{1}{6}$	M1	for $\frac{a}{18}$ with $a < 18$, or $\frac{3}{b}$ with $b > 3$, ft their Venn diagram
		A1	$\frac{3}{18}$ oe <i>Additional guidance:</i> Accept 0.17 or better (0.166 ...). Do not accept “3 out of 18” or 3:18 for A1 (M1 can be awarded).
Total for Question 22: 5 marks			
23	1200 cups	P1	for a start to the process, e.g. listing at least 3 multiples of both 40 and 75, or $2^3 \times 5$ and 3×5^2
		P1	for identifying 600 as the LCM, or for 15 packs of cups and 8 packs of lids
		P1	for a process to find the cost of a common multiple of cups and lids, e.g. $15 \times 3.20 + 8 \times 4.50$ (= 84)
		P1	for a complete process to compare with £200, e.g. $200 \div “84”$ (= 2.38 ...), or “168” and “252”
		A1	1200 cao <i>Additional guidance:</i> An answer of 600 scores P1 P1 P1 P0 A0 at most. $200 \div 3.20 = 62.5$ and $200 \div 4.50 = 44.4 \dots$ (spending all the money on one item) scores P0 P0 P0 P0 A0. Using a common multiple such as 3000 can score the first and third P marks.
24	$x = \frac{y+4}{7}$	M1	for $y + 4 = 7x$ or $\frac{y}{7} = x - \frac{4}{7}$
		A1	$x = \frac{y+4}{7}$ oe <i>Additional guidance:</i> Accept $x = \frac{y}{7} + \frac{4}{7}$. Do not accept $x = y + 4 \div 7$ unless brackets are used. The answer must start $x =$ for A1.
25	6.4 cm	P1	for a process to find the scale factor, e.g. $13 \div 5.2$ (= 2.5) or $5.2 \div 13$ (= 0.4)
		P1	for $47 \div “2.5”$ (= 18.8) or $7.2 \times “2.5”$ (= 18)
		P1	for a complete process to find <i>AC</i> , e.g. “18.8” – 5.2 – 7.2, or $(47 - 13 - “18”) \div “2.5”$

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Q	Answer	Marks	Guidance
		A1	6.4 cao <i>Additional guidance:</i> An answer of 16 (the length of DF) scores P1 P1 P0 A0. Using a difference instead of a scale factor (e.g. $13 - 5.2 = 7.8$) scores P0 P0 P0 A0.
26	3.25%	P1	for $3616 - 3200 (= 416)$ or $3616 \div 3200 (= 1.13)$
		P1	for a complete process, e.g. " 416 " $\div 4 \div 3200 \times 100$ or " 1.13 " $- 1 \div 4 \times 100$
		A1	3.25 cao <i>Additional guidance:</i> An answer of 13 (the rate over 4 years) scores P1 P0 A0. Using compound interest, e.g. $\sqrt[4]{1.13}$ ($= 1.0310 \dots$, giving 3.1%), scores P1 P0 A0. Trial and improvement leading to 3.25 scores full marks.
27	$A = (x+8)(x-3) - 9 = x^2 + 5x - 33$ $5x - 24 - 9 = x^2 + 5x - 33$	M1	for expanding $(x+8)(x-3)$ with at least 3 of the 4 terms correct in $x^2 - 3x + 8x - 24$, or for expanding $(x+8)(x-6)$ with at least 3 of the 4 terms correct
		M1	for a correct expression for the area of the shape, e.g. $(x+8)(x-3) - 9$ or $(x+8)(x-6) + 3(x+5)$
		A1	for a complete and correct method leading to $x^2 + 5x - 33$ <i>Additional guidance:</i> The expansion must be shown; $x^2 + 5x - 24 - 9$ with no expansion seen scores M0 M1 A0. Working backwards from the given answer scores no marks.
28(a)	First throw: 0.88 (no prize). Second throw: 0.12 (prize), 0.88 (no prize) on both pairs	B1	for 0.88 on the first throw 'no prize' branch
		B1	for 0.12, 0.88, 0.12, 0.88 correctly placed on the second throw branches <i>Additional guidance:</i> Accept equivalent fractions or percentages.
28(b)	No. P(at least one prize) $= 1 - 0.88 \times 0.88 =$ 0.2256, not 0.24	M1	for $1 - 0.88 \times 0.88$ oe or $0.12 \times 0.12 + 0.12 \times 0.88 + 0.88 \times 0.12$ oe, ft their tree
		C1	for No with 0.2256 oe <i>Additional guidance:</i> "No" with no correct working scores M0 C0. Accept 0.226 or 0.23 with correct working for C1. $0.12 \times 0.88 \times 2 (= 0.2112)$ alone scores M0 C0.

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Q	Answer	Marks	Guidance
Total for Question 28: 4 marks			
29	$x = 4, y = -3$	M1	for a correct process to eliminate one variable (condone one arithmetic error), e.g. $10x + 4y = 28$ added to $3x - 4y = 24$
		M1	(dep) for substituting their found value into one of the equations, or for a correct process to eliminate the other variable
		A1	for $x = 4$ and $y = -3$ <i>Additional guidance:</i> Trial and improvement scores 0 marks unless both values are correct. Correct answers with no working score 3 marks.