

Mark Scheme

Edexcel Foundation Mock Set A Paper 1

For Pearson Edexcel GCSE Mathematics (1MA1)

Foundation tier • Paper 1 (Non-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	0.43	B1	cao
2	8000 (eight thousand)	B1	for 8000 or eight thousand oe <i>Additional guidance:</i> Accept 8 thousand. Do not accept thousands or 8 alone.
3	14 _w	B1	cao <i>Additional guidance:</i> Accept w14. Do not accept 2w7 or 9w.
4	7000 grams	B1	cao
5	9	B1	cao <i>Additional guidance:</i> Accept –9 or ±9.
6	£3.11	P1 P1 P1 A1	for 4×1.35 (= 5.40) or $12 \div 3 \times 1.25$ (= 5.00) for a process to find the total cost, eg “5.40” + “5.00” + 6.49 (= 16.89) (dep on previous P1) for 20 – [total cost] cao <i>Additional guidance:</i> Use of 12×1.25 (= 15) for the pots is not a correct process for the pots, but can score P1 for 4×1.35 , then P1 and P1 for $20 - (5.40 + 15 + 6.49)$ (an answer of –6.89 or 6.89 scores P1P1P1A0). Accept answers given as 311p.
7(a)	13	B1	cao
7(b)	Yes: Year 7 borrowed 44 books and Year 8 borrowed 40 books.	M1 C1	for adding the four bars for Year 7 or for Year 8, eg $12 + 8 + 14 + 10$ (= 44) or $10 + 13 + 6 + 11$ (= 40) for Yes with 44 and 40 (or with a correct difference of 4 from a correct method) <i>Additional guidance:</i> Accept a comparison day by day: +2, –5, +8, –1, so Year 7 borrowed 4 more books, with “Yes”, for M1C1. “Yes” with no working, or with a reason based only on the tallest bar, scores MOC0.
Total for Question 7: 3 marks			
8(i)	57°	M1 A1	for $360 - (90 + 115 + 98)$ oe cao
8(ii)	Angles at a point add up to 360°.	C1	for angles at a point add up to 360° oe

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Accept angles around a point (or in a full turn) add up to 360. Do not accept angles in a circle add up to 360, or a description of the calculation only.
Total for Question 8: 3 marks			
9(a)	14	B1	cao
9(b)	3	M1	for $-6 + 18 (= 12)$ or a start using inverse operations, eg sight of $+18$ and $\div 4$
		A1	cao
			<i>Additional guidance:</i> Embedded answer, eg $3 \times 4 - 18 = -6$, scores M1A0.
Total for Question 9: 3 marks			
10(a)	Cross at $\frac{1}{2}$	B1	for a cross at $\frac{1}{2}$ <i>Additional guidance:</i> Accept a cross within 2 mm of the correct position. Accept a clearly marked point or arrow in place of a cross.
10(b)	Yes: 1, 2, 3, 4 and 6 are factors of 12, so the probability is $\frac{5}{8}$, which is more than $\frac{1}{2}$ ($= \frac{4}{8}$).	C1	for Yes with a correct reason, eg $\frac{5}{8}$ (oe) is more than $\frac{1}{2}$, or 5 of the 8 numbers (1, 2, 3, 4, 6) are factors of 12 <i>Additional guidance:</i> Do not accept “Yes” with no reason, or with a reason based on an incorrect list of factors. “No” from $\frac{4}{8}$ (1 missed out) scores C0.
Total for Question 10: 2 marks			
11(a)	1200	M1	for at least two of 60, 4, 0.2 seen
		A1	for 1200
			<i>Additional guidance:</i> Accept answers from 1100 to 1200 if at least two numbers are correctly rounded, eg $60 \times 3.7 \div 0.2 = 1110$ or $60 \times 4 \div 0.21 = 1142.8 \dots$ No marks for an exact calculation (1018.3 ...) with no rounding seen.
11(b)	Overestimate: 57.8 and 3.7 were rounded up and 0.21 was rounded down.	C1	for overestimate with a correct reason, eg 57.8 and 3.7 rounded up and 0.21 rounded down

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> The reason must mention the division (the denominator) as well as the numerator, eg “all the numbers on the top were rounded up and the number on the bottom was rounded down”. ft their roundings in (a). “Overestimate” alone, or “because I rounded”, scores C0.
11(c)	7280	B1	cao
Total for Question 11: 4 marks			
12(a)	$\frac{8}{15}$	M1	for both fractions written with a common denominator, with at least one numerator correct, eg $\frac{21}{30} - \frac{5}{30}$ or $\frac{42}{60} - \frac{10}{60}$
		A1	for $\frac{8}{15}$ <i>Additional guidance:</i> $\frac{16}{30}$ with no further simplification scores M1A0.
12(b)	$\frac{40}{180} = \frac{2}{9}$	M1	for $\frac{40}{180}$ oe or for correct cancelling, eg $\frac{1}{3} \times \frac{2}{3}$
		A1	for a fully correct method leading to $\frac{2}{9}$ <i>Additional guidance:</i> For A1, the working must show how $\frac{2}{9}$ is obtained, eg $\frac{40}{180} = \frac{4}{18} = \frac{2}{9}$.
Total for Question 12: 4 marks			
13(a)	(-3, 4)	B1	cao
13(b)	(1, 3)	B1	cao
Total for Question 13: 2 marks			
14	$T = 16a + 9c + 1.5$	B3	for $T = 16a + 9c + 1.5$ oe <i>Additional guidance:</i> (B2 for $16a + 9c + 1.5$ oe, or for $T = 16a + 9c + k$ where k is a number, or $T = 16a + 9c$.) (B1 for $16a$ or $9c$ seen.) Accept $T = 1600a + 900c + 150$ if working is clearly in pence and stated. Do not award B3 for $T = 16a + 9c + 1.5 = 26.5ac$ (incorrect further work).
15	30%	P1	for $240 \div 4$ (= 60) and $240 - “60”$ (= 180) or $\frac{3}{4} \times 240$ (= 180)
		P1	for $\frac{20}{100} \times “180”$ (= 36) or “180” – “36” (= 144)
		P1	for a complete process, eg “144” $\div 2$ (= 72) and $\frac{“72”}{240} \times 100$
		A1	cao

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Alternative method using percentages: P1 for $100 - 25 (= 75\%)$, P1 for $0.8 \times 75 (= 60\%)$, P1 for “60” $\div 2$, A1 30. Taking 20% of 240 ($= 48$) gives $(240 - 60 - 48) \div 2 = 66$, $\frac{66}{240} \times 100 = 27.5$: P1POP1AO.
16	32.16	M1	for a complete method with relative place value correct, eg 67×48 by long multiplication or a grid, condone one arithmetic error
		A1	for digits 3216
		A1	ft (dep on M1) for correct placement of the decimal point in their answer
			<i>Additional guidance:</i> Grid method: $6 \times 4 = 24$, $6 \times 0.8 = 4.8$, $0.7 \times 4 = 2.8$, $0.7 \times 0.8 = 0.56$, total 32.16. An incorrect answer with no working scores 0.
17(a)	75, 45 45, 30, 27, 18	B3	for a fully correct frequency tree
			<i>Additional guidance:</i> (B2 for 4 or 5 correct entries) (B1 for 2 or 3 correct entries)
17(b)	$\frac{27}{120} \left(= \frac{9}{40} \right)$	M1	ft for $\frac{a}{120}$ with $a < 120$, or $\frac{27}{b}$ with $b > 27$ (27 from their tree)
		A1	for $\frac{27}{120}$ oe, eg $\frac{9}{40}$, 0.225
			<i>Additional guidance:</i> ft their frequency tree for M1 and A1. Do not accept 27:120 or 27 out of 120 for A1 (M1 only).
Total for Question 17: 5 marks			
18	225 g	M1	for $90 \div 12 \times 30$ oe, eg 90×2.5 , or $90 \times 2 + 45$, or 45×5
		A1	cao
19(a)	$2 \times 2 \times 3 \times 3 \times 11$ ($= 2^2 \times 3^2 \times 11$)	M1	for at least two correct steps in a method of repeated division or a factor tree (may be seen in a tree or ladder)
		A1	for $2 \times 2 \times 3 \times 3 \times 11$ oe, eg $2^2 \times 3^2 \times 11$
			<i>Additional guidance:</i> Do not accept 2, 2, 3, 3, 11 (a list) or $2 + 2 + 3 + 3 + 11$ for A1 (M1 only).
19(b)	36	M1	for $540 = 2 \times 2 \times 3 \times 3 \times 3 \times 5$ oe, or a Venn diagram with prime factors, or at least 3 correct factors of each number
		A1	cao

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Q	Answer	Marks	Guidance
			<i>Additional guidance:</i> Answers of 2, 3, 4, 6, 9, 12 or 18 (common factors) score M1 only if a correct method is seen.
			Total for Question 19: 4 marks
20	75°	P1	for a process to find the interior angle of a regular octagon, eg $180 - 360 \div 8$ or $(8 - 2) \times 180 \div 8$ (= 135)
		P1	for "135" – 60
		A1	cao
			<i>Additional guidance:</i> Angles may be seen on the diagram. $360 - 135 - 60$ (= 165) scores P1P0A0. An answer of 75 with no working scores 0 (the question says you must show all your working).
21	Rotation 90° anticlockwise about (0,0)	B2	for rotation, 90° anticlockwise oe, centre (0,0)
			<i>Additional guidance:</i> (B1 for rotation with 90° anticlockwise or with centre (0,0).) Accept 270° clockwise, +90° or a quarter turn anticlockwise, and "about the origin". Award no marks if more than one transformation is given.
22	83	P1	for $140 \div (4 + 3)$ (= 20) and $4 \times "20"$ (= 80) or $3 \times "20"$ (= 60)
		P1	for $\frac{3}{8} \times "80"$ (= 30) or $\frac{5}{8} \times "80"$ (= 50)
		P1	for $\frac{45}{100} \times "60"$ (= 27) or $\frac{55}{100} \times "60"$ (= 33)
		P1	for a complete process, eg $140 - ("30" + "27")$ or $"50" + "33"$
		A1	cao
			<i>Additional guidance:</i> An answer of 57 (the number who go) with correct working scores P1P1P1P0A0.
23(a)	She multiplied the powers 6 and 3 instead of adding them ($7^6 \times 7^3 = 7^9$, not 7^{18}).	C1	for identifying that the powers 6 and 3 were multiplied instead of added, eg "she did 6×3 , it should be $6 + 3$ " or " $7^6 \times 7^3 = 7^9$ not 7^{18} "
			<i>Additional guidance:</i> Do not accept a description of the second line (it is correct for her first line), or "she got the powers wrong" with no detail.
23(b)	7 ⁵	B1	cao
			Total for Question 23: 2 marks

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Q	Answer	Marks	Guidance
24(a)	0.0047	B1	cao
24(b)	2.8×10^9	M1	for 28×10^8 or 2 800 000 000 or 2.8×10^n where $n \neq 9$
		A1	cao
Total for Question 24: 3 marks			
25	£28	P1	for $52 \div 65$ ($= 0.8$) or $52 \div 0.65$ ($= 80$) or $65\% = 52$ with a correct start to find 100%, eg $5\% = 4$
		P1	for a complete process to find the saving, eg “80” -52 or $0.35 \times “80”$ or $52 \div 65 \times 35$
		A1	cao <i>Additional guidance:</i> 0.35×52 ($= 18.20$) scores POPOA0. An answer of 80 (the normal price) with correct working scores P1POA0.
26(a)	-1, -5, -4, 4	B2	for all four correct: -1, -5, -4, 4 <i>Additional guidance:</i> (B1 for 2 or 3 correct)
26(b)	Smooth U-shaped curve through (-4, 4), (-3, -1), (-2, -4), (-1, -5), (0, -4), (1, -1), (2, 4)	M1	ft for at least 6 points from their table plotted correctly
		A1	for a fully correct smooth curve <i>Additional guidance:</i> For A1 the curve must pass through all seven correct points; condone a curve that is slightly flat between $x = -2$ and $x = 0$. Line segments score M1A0.
26(c)	$x \approx -3.2$ and $x \approx 1.2$	B2	for -3.4 to -3.1 and 1.1 to 1.4 <i>Additional guidance:</i> (B1 for one correct value, or for both values ft from their curve where it crosses the x -axis.) Coordinates (-3.2, 0) and (1.2, 0) score B1 only.
Total for Question 26: 6 marks			
27(a)	$y = 3x + 1$	M1	for a method to find the gradient, eg $\frac{7-1}{2-0}$ or a correct gradient triangle
		M1	for $y = 3x + c$ or $y = mx + 1$ ($m \neq 0$)
		A1	for $y = 3x + 1$ oe <i>Additional guidance:</i> Award M1M1A0 for $L = 3x + 1$ or $3x + 1$. Gradient and intercept stated separately (“ $m = 3$, $c = 1$ ”) score M1M1A0. $y = \frac{1}{3}x + 1$ scores MOM1A0.

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Q	Answer	Marks	Guidance
27(b)	No: when $x = 20$, $y = 3 \times 20 + 1 = 61$, not 62.	C1	for No with $3 \times 20 + 1 = 61$ oe, eg $(62 - 1) \div 3 = 20.3 \dots$, ft their equation from (a) <i>Additional guidance:</i> ft their $y = mx + c$ from (a) with a correct substitution and a consistent conclusion. "No" with no working scores C0.
Total for Question 27: 4 marks			
28	1	B1	cao