



Mark Scheme (Results)

Predicted Paper 2- Set 1

Edexcel-style GCSE

In Mathematics (PA-1MA1/2F)

Foundation (Calculator) Paper 2F

General Marking Guidance

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

1. All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first. Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the response should be sent to review.
2. All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no answer) indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

Questions where working is not required: In general, the correct answer should be given full marks.

Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

3. **Crossed out work**

This should be marked unless the candidate has replaced it with an alternative response.

4. **Choice of method**

If there is a choice of methods shown, mark the method that leads to the answer given on the answer line. If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

5. **Incorrect method**

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

6. **Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award. Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7. Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (eg an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

8. Probability

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9. Linear equations

Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

10. Range of answers

Unless otherwise stated, when an answer is given as a range (eg 3.5 – 4.2) then this is inclusive of the end points (eg 3.5, 4.2) and all numbers within the range

11. Number in brackets after a calculation

Where there is a number in brackets after a calculation eg $2 \times 6 (=12)$ then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

12. Use of inverted commas

Some numbers in the mark scheme will appear inside inverted commas eg "12" $\times$ 50 ; the number in inverted commas cannot be any number – it must come from a correct method or process but the candidate may make an arithmetic error in their working.

13. Word in square brackets

Where a word is used in square brackets eg [area] $\times$ 1.5 : the value used for [area] does not have to come from a correct method or process but is the value that the candidate believes is the area. If there are any constraints on the value that can be used, details will be given in the mark scheme.

14. Misread

If a candidate misreads a number from the question. eg uses 252 instead of 255; method or process marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review.

Guidance on the use of abbreviations within this mark scheme

M	method mark awarded for a correct method or partial method
P	process mark awarded for a correct process as part of a problem solving question
A	accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)
C	communication mark awarded for a fully correct statement(s) with no contradiction or ambiguity
B	unconditional accuracy mark (no method needed)
oe	or equivalent
cao	correct answer only
ft	follow through (when appropriate as per mark scheme)
sc	special case
dep	dependent (on a previous mark)
indep	independent
awrt	answer which rounds to
isw	ignore subsequent working

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
1	4.12×10^7	B1	cao for 4.12×10^7 written in correct standard form	Coefficient must be $1 \leq a < 10$. Do not accept 41.2×10^6 or 4.12×10^5
2	10y oe	B1	Oe for 10y	Accept $y \times 10$, $10 \times y$, or $y10$ Do not accept $y + 10$ or $y \div 10$
3	a = 5, b = -15	M1 A1	for a correct equation, e.g. $6 + b = -9$ or $-a + 7 = 2$, or for one correct value Cao for both a = 5 and b = -15	The method mark can be implied if one correct answer is written on the answer line. Both values must be correct to be awarded the final accuracy mark.
4	87	M1 A1	for $1 - (0.04 + 0.23 + 0.08 + 0.15 + 0.21) (= 0.29)$, or for 0.29×300 Cao for 87	The M mark can be implied if 0.29 is seen in the working. An answer of 87/300 scores M1 A0.
5(a)	12pq	B1	Oe for 12pq	Accept pq12 .Do not accept $12 \times pq$, $pq \times 12$. Partial simplification does NOT get the mark .
5(b)	$6m - 2n$	B1	for $6m - 2n$ oe	Accept $-2n + 6m$
5(c)	$2y^3$	B1	Cao for $2y^3$	Do not accept unsimplified forms like $y^3 + y^3$
6	19 and 47	M1 M1 A1	for selecting two prime numbers from the list for attempting to add any two numbers from the list where the sum is a multiple of 11 e.g. $19 + 47 (= 66)$, $66 \div 11 (= 6)$ Cao for 19 and 47	Primes in list: 2, 5, 13, 19, 23, 47 Accept any valid pair whose sum is a multiple of 11 Accept either order, e.g. 47 and 19. No other pair is valid.
7(a)	75 km	M1 A1	for " 5 " $\times 15$ oe using a correct measured length for 75 (accept 72–78)	Due to digital scaling, exact measurement varies. Typically allow a tolerance of ± 0.2 cm. Accept measured length between 72–78 ft their measured distance $\times 15$
7(b)	070	B1	for 070 (accept 068–072)	Bearing must be given as three figures

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
8	11	M1 A1	for correct substitution, e.g. $3 \times (5) + 4 \times (-1) = 15 - 4$ oe cao 11	Substitution may be seen in stages
9(a)	1/2	B1	for 1/2	oe, accept 0.5
9(b)	36 cm	B1	Cao for 36 cm	Accept 36 cao. Penalise incorrect rounding or incorrect trigonometric ratio.
10	7 and -7	M1 M1 A1	for calculating the squares of the numbers $(-6)^2 + 5^2 + t^2 = 110$, $36 + 25 + t^2 = 110$, for $t^2 = 110 - 61 (= 49)$ oe Cao for both 7 and -7	Setting up a correct equation dep on first M1 Both values required for the accuracy mark.
11(i)	20	B1	Cao for 20	Ft One circle equals to 8 pizzas and half circle equals to 4 pizzas
11(ii)	28	B1	Cao for 28	Ft One circle equals to 8 pizzas and half circle equals to 4 pizzas
11(b)	Wed = 8 (1 symbol), Thu = 24 (3 symbols)	M1 M1 A1	for a correct method to find Wednesday = 8, Thursday = 24, $W + 3W = 32$, $4W = 32$, $W=8$ for drawing exactly 1 full symbol for Wed OR 3 full symbols for Thu for Thursday = 24 (3 symbols)	Do not penalize students who do not use algebra. Award the M1 mark for any clear ratio or arithmetic method, such as showing $1 + 3 = 4$ parts, followed by $32 \div 4 = 8$. Both the symbols must be drawn on the actual pictogram grid.
12(a)	2/7	M1 A1	for process to find green bottles $56 - 28 - 12 (= 16)$ oe For 2/7 oe	Finding number of green bottles Accept 16/56 or any correct equivalent
12(b)	7 : 3 : 4	M1 A1	for writing the initial ratio 28:12:16, and dividing by 4 Cao for 7:3:4	If a student writes the correct unsimplified ratio (28:12:16) or a partially simplified version (such as 14:6:8) on the final answer line, they have not fully simplified the ratio. Award M1 A0. Do not award the final A1 mark for reversed or mixed orders (such as 4:3:7 or 3:7:4) even if the simplification is mathematically correct.

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
13(i)	12	B1	Cao for 12 (edges of a cuboid)	Accept 360° Angles around a point sum to 360
13(ii)	360	B1	Cao for 360 (sum of exterior angles)	
13(b)	77	M1 A1	for $360 - (70 + 115 + 98)$ oe cao 77	
14(a)	A(3, 3), B(1, -2)	B1	Cao for both coordinates correct	Do not allow x and y within the coordinates eg (3x,3y),(1x,-2y) B0 Accept $(2, \frac{1}{2})$, Accept line of any length, dotted or dashed and/or drawn freehand
14(b)	(2, 0.5)	B1	for finding (2,0.5) Correct method $(\frac{3}{2} + \frac{1}{2}), (\frac{3}{2} - \frac{2}{2})$ = (2,0.5) oe	
14(c)	line drawn	B1	for a correct horizontal line through $y = 2$	
15(a)	17	B1	Cao for $34 - 17 (= 17)$	range = Highest - lowest value There are 14 values, so take an average of 7th and 8th term $= 25 + 27 / 2 = 52/2$ $= 26$
15(b)	26	B1	Cao of correct median 26	
16	5.5	M1 A1	for $4x = 17 + 5$ oe or $4x = 22$ for 5.5 oe	Correct rearrangement Accept 11/2
17(a)	704	M1 A1	for 3.52×200 oe or $352/100 \times 200$ cao 704	Recognising $5.40 = 90\%$ Accept 6.00
17(b)	£6	M1 A1	for $5.40 \div 0.9$ oe or $5.40 \div 90 \times 100$ cao 6	

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
18	60 days	M1 M1 A1	for a correct method to find common multiples for a process to identify the lowest common multiple cao 60	Multiples of 6=6,12,18,24,30,36,42,48,54,10 Multiples of 20=20,40,60,80,100 LCM of 6 and 20 = 60 Do not allow any incorrect multiples dep on first M1
19(a)	6 7 8 9 10 11 9 10 11 12 13 14	B1	for a fully correct sample space diagram	All 12 values should be in correct place If one of the value is wrong ,B0 allotted
19(b)	7/18	M1 A1	(ft) for finding 7 successful outcomes OR and denominator of 18 for 7/18 oe	7 outcomes ft their completed sample space
20(a)	6	B1	for 6 ($\frac{3}{4} \times \sqrt{64} = \frac{3}{4} \times 8$) oe	Accept -6 also
20(b)	Explanation	C1	for a correct explanation, e.g. $\sqrt{25} + \sqrt{81} = 5 + 9 = 14$, not $\sqrt{106}$	Must state that radicands cannot be added
21	28 cm	M1 M1 A1	for $4x - 8 = 2x + 10$ oe For $2x + 18$, $x=9$ cao 28	Setting opposite sides equal Dep on M1 , SC- If answer given is just 9, award M2 A0.
22(a)	e.g. $(-1)^3 = -1$	B1	for a valid counter example oe	Any negative integer cubed gives a negative result Alternative examples : $(-2)^3 = -8$ $(-4)^3 = -64$
22(b)	e.g. $1^2 = 1$	B1	for a valid counter example oe	Any odd number squared is always odd Alternative examples : $3^2 = 9$ $9^2 = 81$
22(c)	e.g. 21, 33, 27, 10	B1	for a valid counter example	e.g. $21 = 3 \times 7$, $33 = 3 \times 11$ Accept any valid example award B1

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
23	Shown (12%)	M1 M1 C1	for $200 \div 40 (= 5)$ (original density) for $(200 + 20) \div (40 + 10) = 220 \div 50 (= 4.4)$ For concluding process $(5 - 4.4) \div 5 \times 100 = 12\%$ shown Stella is correct	Show-that question New density Conclusion must show 12% decrease Gets 12% but writes "Stella is incorrect" so Award P2
24(a)	3/5	B1	for 3/5 oe	Accept 21/35, 0.6, 60%
24(b)	4/7	B1	for 4/7 oe	Accept 20/35
25	Shown ($r = 5$)	M1 M1 M1 A1	For finding area of shape A: $\pi \times 20^2 \div 4 (= 100\pi)$ For finding area of shape B: $100\pi \div 4 (= 25\pi)$ for $\pi r^2 = 25\pi$ leading to $r^2 = 25$ Cao for $r = 5$	Area of quarter-circle A Area of circle B Dep on M1 Do not accept if -5 is written Award M3
26	-4 and -14	B1 B1	Cao for first correct negative term (-4) Cao for second correct negative term (-14)	Differences -4, -6, -8, -10, ... Accept either order
27	0.35, 0.3(5r), 0.35(5r)	B1	for the correct order (smallest first)	Accept equivalent notation for recurring decimals
28	$8.55 \leq d < 8.65$	B1 B1	for 8.55 (lower bound) for 8.65 with fully correct inequalities	Both bounds and inequality signs required

Paper: PA-1MA1/2F				
Question	Answer	Mark	Mark Scheme	Additional guidance
29	9 cm	M1 M1 A1	for ratio $8/12 (= 2/3)$ oe for $YP = 13.5 \times 8/12$ oe cao 9	Recognition of similar triangles and setting up the correct proportional relationship. FT from their ratio
30(a)	1	M1 A1	for rounding each value appropriately for 1	Accept other sensible roundings
30(b)	810	B1	for 810	807.06 to 2 significant figures