Mark Scheme

Mock Set 3

Pearson Edexcel GCSE Mathematics (1MA1)
Foundation Tier (Calculator)
Paper 3F

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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 answer is given on the answer line using both incorrect and correct notation, award the 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 (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and all numbers within the range.

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

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

Foundation tier Paper 3F (Calculator): Mock (Set 3) Mark Scheme

Question		Working	Answer	Mark	Notes
1			$\dfrac{2}{5}$	B1	or equivalent fraction
2			3.5	B1	for 3.5 oe
3			$\dfrac{9}{30}$	B1	cao
4			−12	B1	cao
5	(a)		20	B1	cao
	(b)		09 12	B1	or equivalent time given but using correct notation
	(c)		08 53	B1	or equivalent time given but using correct notation
6			145	M1	for 319 ÷ 2.2
				A1	cao
7			Steve with correct figures	P1	for a process to find the number of green apples for one person, eg 264 ÷ 6 (= 44) **or** 0.28 × 150 (= 42) **or** 0.15 × 340 (= 51)
				P1	for a process that would lead to the number of green apples for two people, eg two of: 264 ÷ 6 (= 44) **or** 0.28 × 150 (= 42) **or** 0.15 × 340 (= 51)
				P1	for a process that would lead to the number of green apples for all three people, eg 264 ÷ 6 (= 44) **and** 0.28 × 150 (= 42) **and** 0.15 × 340 (= 51)
				C1	44, 42, 51 with a correct conclusion.

Question	Working	Answer	Mark	Notes
8	Ath $= \frac{13}{45} \times 360 = 104°$ Cyc $= \frac{17}{45} \times 360 = 136°$ Swi $= \frac{8}{45} \times 360 = 64°$ Gym $= \frac{7}{45} \times 360 = 56°$	Correct pie chart	M1 A1 B1	a method shown to calculate one angle eg $\frac{13}{45} \times 360$ **or** $\frac{17}{45} \times 360$ **or** $\frac{8}{45} \times 360$ **or** $\frac{7}{45} \times 360$ **or** 1 correct angle drawn out of 4 sectors All angles drawn correctly $\pm 2°$ Sectors labelled with sport (dependent on at least 2 angles drawn correctly and exactly 4 sectors)
9 (a)		43	B1	cao
(b)		−17	B1	cao
(c)		12	M1 A1	for $(79 − 7) \div 6$; condone missing brackets cao
10		4.14	P1 P1 P1 A1	for a first step to the process, eg to find the cost of 100 g of strawberries, eg $4.10 \div 5 (= 0.82)$, **or** for a process to find 200 g of raspberries and 1.5 kg of strawberries, eg $7.46 \times 5 (= 37.30)$, **or** 1 kg of strawberries cost $4.10 \times 2 (= 8.10)$ for a process to find the cost of 400 g of raspberries, eg $7.46 − (3 \times (4.10 \div 5)) (= 5)$ **or** process to find 200 g of both, eg $(7.46 \times 5) + 4.10 (= 41.40)$ for a complete process to find the cost of 200 g of both, eg ("5" ÷ 4) × 2 + "0.82" × 2 **or** "41.10" ÷ 10 cao
11		Translation $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$	B1 B1	for translation for $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$

Question	Working	Answer	Mark	Notes
				Award B0 for evidence shown of more than one type of transformation
12 i		$2 \times (7^2 - 2) = 94$	B1	for brackets correctly placed
ii		$16 \div (2 + 6) \times 2 = 4$	B1	for brackets correctly placed
13		187	M1	for a method to find a missing length, eg $15 - 7 \ (= 8)$ **or** $22 - 9 \ (= 13)$ (may be seen on the diagram)
			M1	for a method to find the area of the triangle, eg $((15 - 7) \times (22 - 9)) \div 2 \ (= 52)$ **or** to find the area of the rectangle, eg $9 \times 15 \ (= 135)$
			A1	cao
14	$\begin{array}{\|c\|c\|c\|c\|c\|c\|c\|c\|} \hline x & -3 & -2 & -1 & 0 & 1 & 2 & 3 \\ \hline y & -8 & -6 & -4 & -2 & 0 & 2 & 4 \\ \hline \end{array}$	$y = 2x - 2$ drawn	B3	for a correct line between $x = -3$ and $x = 3$
				OR
			[B2]	[for a correct straight line segment through at least 3 of $(-3, -8)$, $(-2, -6)$, $(-1, -4)$, $(0, -2)$, $(1, 0)$, $(2, 2)$, $(3, 4)$, **or** for all of these points plotted but not joined **or** for a line drawn with a positive gradient through $(0, -2)$ **and** clear intention to use of a gradient of 2, eg line through $(0, -2)$ and $(0.5, -1)$]
				OR
			[B1]	[for at least 2 correct points stated or plotted **or** for a line drawn with a positive gradient through $(0, 7)$ **or** a line with gradient 2]
15 (a)		$19.0\dot{6}$	M1	for 7.84 **or** 12.2 **or** 1.38
			A1	for 19.066 (66666…) or 19.06 with some indication that the 6 is recurring
(b)		19.1	B1	ft from part (a) providing to at least 2 decimal places

Question		Working	Answer	Mark	Notes
16	(a)		2	B1	cao
	(b)		66	M1	for method for calculating at least 4 values *fx* values correctly
				A1	cao
17	(a)		$2a^2 + 14a$	B1	cao
	(b)		$7(2b - 1)$	B1	cao
	(c)		13	M1	for correct expansion of the bracket, **or** for intention to divide both sides by 9 as the first step
				A1	cao
	(d)		$12y^5$	B1	cao
18			334.4(0)	P1	for process to find 12% of 5700 **or** 88% of 5700, eg 0.12×5700 (= 684) **or** 0.88×5700 (= 5016)
				P1	(dep on P1) for a complete process to find the value of each payment, eg (5700 – "684") ÷ 323 or "5016" ÷ 323
				A1	cao; condone missing 0
19	(a)		$2^3 \times 3 \times 7$	M1	for continual prime factorisation (at least two consecutive steps correct) **or** for at least two stages of a factor tree correct
				M1	for a fully correct factor tree **or** list of 2, 2, 2, 3, 7
				A1	for $2 \times 2 \times 2 \times 3 \times 7$ **or** $2^3 \times 3 \times 7$
	(b)		12	M1	for attempt to list factors of 168 **and** 180 with at least 4 of each correct and none incorrect **or** correct prime factorisation of 180 eg $2 \times 2 \times 3 \times 3 \times 5$ or $2^2 \times 3^2 \times 5$
				A1	cao

Question	Working	Answer	Mark	Notes
20	$36.4 \div \frac{48}{60} = 45.5$ $65.2 \div \frac{85}{60} = 46.0(2352941\ldots)$	Geraldine with correct figures	P1 P1 C1	for a process using speed eg distance/time $36.4 \div 48$ **or** $65.2 \div 85$ **or** $36.4 \div (48 \div 60)$ **or** $65.2 \div (85 \div 60)$ for process to find one correct speed, eg $36.4 \div (48 \div 60)$ **or** $65.2 \div (85 \div 60)$ for Geraldine with correct figures, eg 45.5 **and** $46.0(\ldots)$
21		Correct region	B1 B1 B1 C1	for an arc of radius 4.5 cm centred on C for a correct angle bisector drawn at angle ABC for a line drawn 2 cm from AB for the correct region shaded; accept any consistent shading
22 (a)		$\frac{1}{11}, \frac{3}{11}, \frac{7}{11}$	M1 A1	for a denominator of 11 or for one correct probability oe
(b)		249 or 250	P1 A1	for $68 \div \text{“}\frac{3}{11}\text{”}$ oe, ft from part (a), accept rounded integer answers for 249 or 250, ft from part (a), accept rounded integer answers
23 (a)		Evaluation	C1	for error correctly identified, can be in the working, eg circling
(b)		Assessment	C1	for statement that Josh should be looking for two values that add to -6 (not 6)
(c)		Evaluation	C1	for indication that the y intercept should be negative not positive
24		33.7	P1 P1 P1 A1	for starting to use Pythagoras, eg $4.5^2 + 7^2$ for complete process to find KM eg $\sqrt{4.5^2 + 7^2}$ $(= 8.321658489)$ (dep P1) for a correct trigonometry statement, eg $\sin KLM = \text{“}8.32\text{”}\ldots \div 15$ for answer in the range 33.6 to 33.7

Question	Working	Answer	Mark	Notes
25		253 484.16	M1	for a method to find the value at the end of year 1, eg $235\,000 \times 0.96$ $(= 225\,600)$
			M1	(dep M1) for a complete method to find the value at the end of 3 years, eg "225 600" $\times 1.06^2$
			A1	cao
26 (a)		26730	B1	cao
(b)		7.04×10^{-2}	B1	cao
(c)		1.5×10^8	M1	for $150\,000\,000$ or 1.5×10^n where $n \neq 8$
			A1	cao
27		B D A C	B2 (B1)	for all four correctly matched (for 2 correctly matched)