Pearson

Mark Scheme

Mock Set 3

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

edexcel

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Publications Code

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 1F (Non-calculator): Mock (Set 3) Mark Scheme

Question	Working	Answer	Mark	Notes
1 (a)		−12 −8 2 5 10	B1	cao
(b)		1.073 1.307 1.37 1.703	B1	cao
2		$\frac{27}{100}$ oe	B1	
3		$\frac{9}{100}$	B1	
4		2550	B1	cao
5		Hexagon drawn	B1	for a polygon drawn with 6 sides
6		3	M1	for method to find halfway number, e.g. (−4 + 10) ÷ 2 or a number line with evidence of finding halfway value
			A1	cao
7		19.25	M1	for a method to carry out the multiplication of 3.89 × 5 oe or 4 × 5 − 0.11 × 5 oe or digits 1925 seen
			A1	cao

Question	Working	Answer	Mark	Notes
8 (a)		35	M1	for measuring distance correctly (6.8 to 7.2 cm) or multiplying their distance by 5
			A1	for answer in the range 34 to 36
(b)		× on the map	M1	for method to use the scale to equate 22 km to cm, e.g. 22 ÷ 5 (= 4.4) or for a point plotted due South of B (± 2°)
			A1	for correct position on map
9		No (supported)	P1	for a start to the process to work out the sum of costs of articles to buy, e.g. 1.60 × 2 (= 3.20) or 2.25 + 1.85 + 3.30 (= 7.40) or starts to subtract from £10
			P1	for a complete process to work out the sum of costs of articles to buy, e.g. 1.60 × 2 (= 3.20) + 2.25 + 1.85 + 3.30 (= 10.60) or subtraction of all costs from £10
			C1	for correct conclusion with supporting figures e.g. (£)10.60 or 60p short

Question	Working	Answer	Mark	Notes
10 (a)(i)		$\frac{4}{9}$	B1	oe
(a)(ii)		0	B1	
(b)		P1 P2 P3 P4 P5 P6 Y1 Y2 Y3 Y4 Y5 Y6 B1 B2 B3 B4 B5 B6	B2 [B1]	for complete list of 18 outcomes with no repeats [for at least 9 correct outcomes with no more than one incorrect, repeats accepted]
11 (a)		6	B1	cao
(b)		8	B1	cao
12 (a)		12 000	M1 A1	for approximations of 40 or 300 in a product, e.g. 40 × 300 or 40 × 298 or 39 × 300 for accurate answer to their product within the range 11700 to 12000
(b)		Overestimate plus reason	C1	ft for e.g. “overestimate since both estimates are greater than the exact values”

Question	Working	Answer	Mark	Notes
13 (a)		Diagram drawn	C1	for a key or suitable labels to identify boys and girls
			C1	for a diagram or chart set up for comparison
			C1	for correct heights for at least 4 bars dependent on a linear scale
			C1	for a fully correct diagram
(b)		$\frac{20}{24}$	M1	for $\frac{20}{a}$ oe, where $a > 20$ or ft their diagram or $\frac{b}{24}$ oe, where $0 < b < 24$ or ft their diagram
			A1	for $\frac{20}{24}$ oe or ft their diagram

Question	Working	Answer	Mark	Notes
14	172 34 5160 688+ 1 7 2 0/3 2/1 0/6 3 0/4 2/8 0/8 4 100 70 2 30 3000 2100 60 4 400 280 8 = 3000 + 2100 + 60 + 400 + 280 + 8	5848	M1 M1 A1	for complete method with relative place value correct (addition not necessary) for addition of all appropriate elements cao
15		$\frac{7}{12}$	M1 M1 A1	for 40 + 50 + 60 (= 150) or 360 – 40 – 50 – 60 (= 210) for $1 - \frac{"150"}{360}$ $\left(=\frac{210}{360}\right)$ or $\frac{"210"}{360}$ for $\frac{7}{12}$

Question	Working	Answer	Mark	Notes
16		2 errors identified	C2 (C1)	for 2 correct errors spotted from the list below (for 1 correct error spotted from the list below) Errors: incorrect key; units should be years for a missing entry (of 29) for incorrect order in the "4" leaf
17 (a)		Reflection drawn	B2 [B1]	for a fully correct reflection [for either identifying the line $x = -1$ or a correct reflection in a different vertical line]
(b)		$y = x$	B1	for $y = x$ oe
18		24	P1 P1 P1 A1	for start to a process to find cost for students, e.g. $100 - 80$ (= 20) or $180 \times \frac{80}{100}$ (= 144) for complete process, e.g. $180 \times \frac{"20"}{100}$ (= 36) or 180 – "144" (= 36) for start to the process to find "36" ÷ 1.5, e.g. 360 ÷ 15 cao

Question	Working	Answer	Mark	Notes
19		No with supporting evidence	P1 P1 P1 C1	for process to find dimensions of enlarged photo, e.g. 12×1.5 by 8×1.5 (= 18 by 12) for process to find inside dimensions of the frame, e.g. $(40 - 2 - 2)$ by $(26 - 2 - 2)$ (= 36 by 22) (dep P1) for process to consider one dimension total of the 4 photos, e.g. "18" × 2 (= 36) or "12" × 2 (= 24) OR for process to find area of frame, e.g. "36" × "22" (= 792) and 4 photos, 4 × "18" × "12" = (864) for correct conclusion from accurate figures
20 (a)		3^7	M1 A1	for a first step using a rule of indices, e.g. $3^5 \times 3^4 = 3^{5+4}$ $(= 3^9)$ or $3^5 \div 3^2 = 3^{5-2}$ $(= 3^3)$ or $3^4 \div 3^2 = 3^{4-2}$ $(= 3^2)$ cao
(b)		1	B1	cao
(c)		$\frac{1}{9}$	B1	for $\frac{1}{9}$ (or 0.11…)

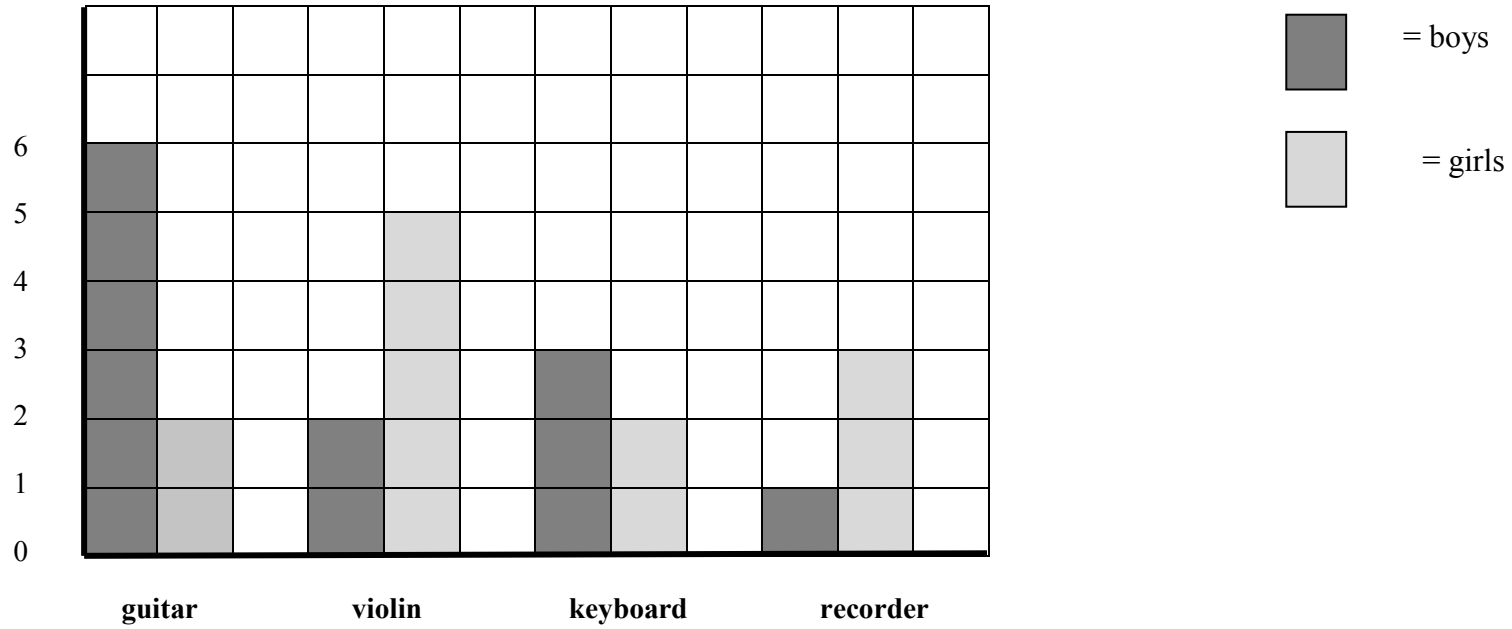
Question	Working	Answer	Mark	Notes
21		20	P1	for process to find the height of the surface of water, e.g. $32 \times \frac{3}{4}$ (= 24)
				or to find the volume of the tank, e.g. 50 × 32 × 20 (= 32 000)
			P1	for process to find volume of water and sand,
				e.g. 50 × "24" × 20 (= 24 000) or "32 000" × $\frac{3}{4}$ (= 24 000)
				or for process to divide their height in the ratio 5 : 1
				e.g. "24" ÷ (5 + 1) × 5 (= 4 × 5 = 20)
			P1	(dep P1) for process to divide volume in ratio 5:1,
				e.g. "24 000" ÷ (5 + 1) × 5 (= 4000 × 5 = 20 000)
				or process to find volume of water, e.g. "20" × 50 × 20 (= 20 000)
			P1`	for process to convert to litres, e.g. "20 000" ÷ 1000
			A1	cao
22		Explanation (supported)	C1	for scale factors of 0.5 for decrease and 1.5 for increase seen; this could be shown in an example, e.g. £10 reduced by £5 then £5 increased by £2.50
			C1	for justifying the statement, e.g. 0.5 × 1.5 = 0.75 or £5 + £2.50 = £7.50

Question	Working	Answer	Mark	Notes
23		50	P1	for equating opposite angles to give an equation in x, e.g. $3x + 10 = 5(x – 10)$
			P1	for expanding the bracket and rearranging terms in x and number terms on opposite sides of the equation, e.g. $5x – 3x = 10 + 50$ $(x = 30)$
			P1	(dep on 1st P1) for substituting their value of x (= 30) into one of the angles, e.g. $3 \times 30 + 10$ or $5(30 – 10)$ (= 100)
			A1	cao
24	$6x – 4y = –10$ $2x – 4y = 2$ $4x = –12$ OR $6x – 4y = –10$ $6x – 12y = 6$ $8y = –16$	$x = –3$, $y = –2$	M1	for a method to eliminate either x or y (condone one arithmetic error)
			M1	(dep on previous M1) for correct substitution of their value of x or y or for a method to eliminate the other unknown
			A1	cao

Question	Working	Answer	Mark	Notes
25		Correct conclusion from correct working	M1 A1 M1 C1	for a method to find the interior angle, e.g. $(8 – 2) \times 180 \div 8$ (= 135) or exterior angle, e.g. $360 \div 8$ (= 45) of a regular octagon for interior angle = 135 or exterior angle = 45 for method to find size of angle *CDA,* e.g. $(360 - 135 \times 2)/2$ (= 45) or for stating and using *BC* parallel to *AD* for method to complete the solution with angle *CDJ* = 135, e.g. 180 − "45" (= 135) or angle *BCD* and angle *CDJ* are alternate angles
26 (a)		**–11**, 1, 3, **1**, 1, **9**	B2 [B1]	for a fully correct table [for two correct new values found]
(b)		graph	M1 A1	dep on at least B1 in (a) for at least 5 correctly plotted points from their table joined for a correct graph

Question	Working	Answer	Mark	Notes
27		18	B1	for process to find the nth term of the given sequence (= $5n - 3$)
			P1	for setting up an equation in n, e.g. "$5n - 3$" = $4n + 15$
			A1	cao
				OR
			B1	for listing terms in each sequence up to a common term, e.g. 2, 7, 12, 17, 22, 27 and 19, 23, 27
			P1	for a process to continue listing up to a common term after the same number of terms in each sequence
			A1	cao

Question 13a



Question 17