



Pearson

# Mark Scheme

## Mock Set 4

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Calculator) Paper 2F

## **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](http://www.edexcel.com) or [www.btec.co.uk](http://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](http://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](http://www.pearson.com/uk)

Summer 2018

Publications Code

All the material in this publication is copyright

© Pearson Education Ltd 2018

## 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 (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.

**11 Number in brackets after a calculation**

Where there is a number in brackets after a calculation E.g.  $2 \times 6 (=12)$  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 E.g. "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 E.g. [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

<b>M</b>	method mark awarded for a correct method or partial method
<b>P</b>	process mark awarded for a correct process as part of a problem solving question
<b>A</b>	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)
<b>C</b>	communication mark awarded for a fully correct statement(s) with no contradiction or ambiguity
<b>B</b>	unconditional accuracy mark (no method needed)
<b>oe</b>	or equivalent
<b>cao</b>	correct answer only
<b>ft</b>	follow through (when appropriate as per mark scheme)
<b>sc</b>	special case
<b>dep</b>	dependent (on a previous mark)
<b>indep</b>	independent
<b>awrt</b>	answer which rounds to
<b>isw</b>	ignore subsequent working

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	20	B1	cao	
2	Two multiples of 8	B1	for any two multiples of 8	Two from 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 94, etc.
3	12 : 7	B1	oe	Any multiple of 12 : 7
4	5	B1	cao	
5 (a)	Line	B1	Line drawn in the range 88 to 92 mm	
(b)	Angle	B1	Angle drawn in the range 118° to 122°	
6	7	M1 A1	for $18 - 4 (=14)$ or $2x + 4$ cao	Could be drawn as a reverse flow diagram; inverse operations must be seen.
7 (a)	Bars shown	B2 (B1	for four accurate bars drawn for 2 or 3 accurate bars drawn)	<p>Bars can be hand-drawn; heights should be closer to required heights than adjacent. Condone different widths if association with 4 &amp; 5 is still clear. Numbers may be written on the diagram but there must be an intention to sum</p> <p>3 more adults give “1” (than children) the same number give “2” 1 more child gives “3” (than adults) 8 less adults give “4” (than children) 1 more child gives “5” (than adults)</p>
(b)	48	M1 A1	for $12 + 10 + 11 + 6 + 9$ cao	
(c)	Statement	C2 (C1	Two interpretations eg more children give a higher rating, for one interpretation)	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
8 (a)	3	B1	cao	
(b)	5	M1 A1	for a correct first step eg subtraction of 7 from both sides cao	
9 (a)	3 : 2	B1	cao	Accept any multiple of 1 : 3
(b)	1 : 3	B1	oe	
(c)	48	M1 A1	for $12 \div (12 + 13)$ <b>or</b> 0.48 cao	
10	width = 4 length = 8	P1  P1  P1 A1	for working with perimeter of the triangle eg $4 + 10 + 10 (=24)$ <b>or</b> perimeter of the rectangle eg $(x + 2x) \times 2$  for setting up an equation with perimeter of the rectangle eg $2(x + 2x) = "24"$ or $(x + 2x) = "24" \div 2$  for full method to solve for $x$ eg $x = 12 \div 3$ cao	Award 3 marks for correct answers in an incorrect order eg width = 8, length = 4
11	27	M1 A1	for substituting in 6.2 and $-4$ eg $5 \times 6.2 + -4$ cao	Must be seen with an intention to add

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	combinations	B2	for all 12 combinations given	H5, H6, H7, O5, O6, O7, U5, U6, U7, R5, R6, R7
		(B1	for only 8, 9, 10, 11 correct combinations)	
(b)	0	B1	oe	
13 (a)	3.4	B1	cao	Readings should be accurate eg $16 \times 1.8$ not $16 \times 1.4$ but allow for some tolerance eg $16 \times 1.7$
(b)	28	M1 A1	for a complete method to find the number of pints eg read off at 4 and $\times 4$ 26 to 30	
(c)(i)	$\frac{4}{7}$	M1 A1	for a complete method to find the gradient  0.55 to 0.6	Drawing a right-angled triangle is insufficient unless a correct method is shown eg $4 \div 7$ Allow answers in the range 0.55 to 0.6, including fractions that equate to within the range Do not accept a description of the relationship eg “there are more pints as there are more litres”
(ii)	Statement	C1	eg number of litres per pint	
14	16.31	P1  P1 P1 A1	for working with proportion eg $250 \div 12$ (=20.83..) or $120 \div 5$ (=24) or $65 \times 12$ (=780) or $65 \times 5$ (=325)  for a complete method to work out the correct number of jars or bags required eg “780” $\div 250$ (=3.12) or $65 \div 24$ (=2.7083.. for a complete method using “whole numbers” to find the cost eg $4 \times 2.99 + 3 \times 1.45$ (=16.31)  cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
15	statement	C1	eg She added 2 to 5 or She needed to double 5	Accept a corrected statement eg $\frac{10}{12} - \frac{5}{12}$ oe There is no need to provide an answer.
16	30% of 30  (supported)	P1  P1  C1	for $30 \times 30 \div 100 (=9)$ oe  for $32 \times 28 \div 100 (=8.96)$ oe  Decision made with accurate figures eg 9 is greater than 8.96 <b>or</b> 30% of 30 is greater than 28% of 32 <b>and</b> 9 <b>and</b> 8.96	Correct figures 9 and 8.96 is insufficient for this mark without a conclusion. A conclusion alone is insufficient without the accurate figures shown.
17	45  (with reasons)	B1  P1  P1  C1	for correct labelling of 60 or stating 60 is the angle in an equilateral triangle  for working with angles eg $180 - 105 (=75)$ or $105 = 60 + x$  for a full method to find $x$ eg $180 - ("75" + 60) (=45)$ or $x = 105 - 60 (=45)$  45 and full reasons used <u>Angles</u> on a straight <u>line</u> add up to 180 <u>Alternate</u> angles are equal <u>Allied</u> angles / <u>Co-interior</u> angles add up to 180	Throughout angles shown on the diagram can be indicative of process       Do not award this mark if a reason is included which does not match a process used. The key words underlined must be present in the reasons given.

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	New York  (supported)	P1  P1  A1	for a method to convert one price to another currency eg $100 \times 1.38 (= 138)$  for a complete method to find 3 prices in the same currency  for New York and correct comparative figures (rounded or truncated to accuracy allowing a comparison)	£: $132 \div 1.38 = 95.65$ $1000 \div 8.42 = 118.76$ \$: $100 \times 1.38 = 138$ $118.76 \times 1.38 = 163.895$ Kuna: $100 \times 8.42 = 842$ $95.65 \times 8.42 = 805.37$
19	3360, 4200	M1  A1	for a complete method to find one part of the ratio eg $7560 \div 9 \times 4 (=3360)$ or $7560 \div 9 \times 5 (=4200)$  3360, 4200	  If numbers are not in the correct order award M1 only
20	(a)(i) 1, 3, 5, 15 (ii) 3 (iii) 1, 3, 5, 9, 15, 21  (b) $\frac{8}{11}$	B1 B1 B1  M1  C1	cao cao cao  for $\frac{8}{a}$ where $a > 8$ or $\frac{b}{11}$ where $b < 11$  $\frac{8}{11}$ oe	Accept numbers in any order  Accept numbers in any order  Accept the equivalents of 0.72, 0.727..., 72% or 72.7(2727...)%
21	14.5 to 14.53	M1  M1  A1	for substituting into Pythagoras' theorem eg $16^2 = 6.7^2 + a^2$ or $\sqrt{16^2 - 6.7^2}$  for a complete method to find the unknown length eg $\sqrt{256 - 44.89}$  Answers in the range 14.5 to 14.53	  Method must show they understand to square; $\sqrt{16 \times 16 - 6.7 \times 6.7}$ is sufficient  If an answer is given in the range but then incorrectly rounded award full marks.

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
22 (a)	104 000	B1	cao	Accept $6.5 \times 10^{-1}$
(b)	$6 \times 10^{-2}$	A1	cao	
(c)	0.65	M1	$(300.3 \times 10^6) \div (4.62 \times 10^8)$ (=0.65) oe	
		A1	cao	
23	15488	P1	for showing a process to depreciate by 20% eg $0.8 \times 25000$ (=20000) oe	Could be shown in several stages eg $25000 - (25000 \times 20 \div 100)$
		P1	for showing a process to depreciate by 12% as a second stage eg “20000” $\times 0.88$ (= 17600)	Or alternative methods eg “20000” $- (20000 \times (100 - 12) \div 100)$
		A1	cao	
24	7.5	P1	for using $\pi \times 4^2 \div 2$ (=25.13..)	“25.13” must come from a correct method involving $\pi$ .
		P1	for finding the area of the trapezium eg $64 - “25.13”$ (=38.86..)	
		P1	for finding the sum of $AB$ and $DC$ eg “38.86..” $\div 5 \times 2$ (=15.54..)	
		P1	for complete process to find the missing length eg “15.54..” $- 8$ (=7.546..)	
		A1	7.5 to 7.6	Accept answers in the range 7.5 to 7.6 If an answer is given in the range but then incorrectly rounded award full marks.

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	4.5	P1  P1  A1	for starting to use inverse proportionality eg $3 \times 4 \times y = 4200$ <b>or</b> $4200 \div (3 \times 4) (=350)$  for a complete method eg $3150 \div ("350" \times 2) (=4.5)$  4.5 oe	Accept $4\frac{1}{2}$ or 4 hours 30 minutes
26	22.5	B1	cao	
27				
(a)	$(m - 3)(m + 3)$	B1	for $(m - 3)(m + 3)$	Accept algebraic equivalents.
(b)	$2x^2 + x - 15$	M1  A1	shows 4 terms correct (disregard signs) or 3 terms with their signs correct  $2x^2 + x - 15$ oe	$2x^2 - 5x + 6x - 15$ NB take account of some simplification eg $2x + x - 15$ is 3 terms correct for M1 Any equivalent must be algebraically equivalent to the answer.

