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## **Mark Scheme (Results)**

Summer 2018

Pearson Edexcel GCSE (9 – 1)  
In Mathematics (1MA1)  
Foundation (Non-Calculator) Paper 1F

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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 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
<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: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	6000	B1	cao	Accept 6 thousand or six thousand
2 (a)	-6,-5,0,6,12	B1	for -6,-5,0,6,12 accept 12, 6, 0, -5,-6	Accept any additional '0's at the end of a decimal, eg 0.780 or 0.870
(b)	0.078,0.708, 0.78,0.87	B1	for 0.078, 0.708, 0.78, 0.87 accept 0.87, 0.78, 0.708, 0.078	
3	$\frac{20}{100}$	B1	$\frac{20}{100}$ oe, eg $\frac{2}{10}$ or $\frac{1}{5}$	Ignore any incorrect simplification of $\frac{20}{100}$ oe and award the mark if $\frac{20}{100}$ oe is seen
4	$\frac{3}{9}$	B1	for $\frac{3}{9}$ accept $\frac{1}{3}$	
5	14	B1	cao	
6 (a)	12t	B1	12t	Accept t12 but <b>not</b> $12 \times t$ or $t \times 12$
(b)	7a	B1	7a	Accept a7 or $7 \times a$ or $a \times 7$ Partial simplification of $5a + 2a$ or $8a - a$ does NOT get the mark

**Paper: 1MA1/1F**

Question	Answer	Mark	Mark scheme	Additional guidance
7 (a) (b) (c)	D B Shown	B1 B1 M1  M1  C1	cao cao for number of green counters, eg $12 - (3+1+2) = 6$ <b>OR</b> for $\frac{3}{12}$ oe <b>or</b> $\frac{1}{12}$ oe <b>or</b> $\frac{2}{12}$ oe linked to the appropriate colour  for $1 - (\frac{3}{12} + \frac{1}{12}) (= \frac{8}{12})$ or " $\frac{2}{12}$ " + " $\frac{6}{12}$ " ( $= \frac{8}{12}$ ) <b>OR</b> for method to find $\frac{2}{3}$ of 12, eg. $12 \div 3 \times 2 (= 8)$  for correct conclusion supported by accurate figures, eg $\frac{8}{12} = \frac{2}{3}$ <b>or</b> $\frac{2}{3}$ of 12 = 8 <b>and</b> number of yellow + green = 2 + 6 = 8	This is awarded for a correct first step  This is awarded for a fully correct method from which the correct answer of $\frac{2}{3}$ can be found Sight of $\frac{8}{12}$ gets M2
8	36	M1  A1	for method to find cost of 1 kg, eg $54 \div 3 (= 18)$ or $54 \div 3 \times 2$ oe  cao	
9 (a) (b)	Radius Tangent	B1 B1	cao cao	Accept spelling mistakes  Accept spelling mistakes

**Paper: 1MA1/1F**

<b>Question</b>	<b>Answer</b>	<b>Mark</b>	<b>Mark scheme</b>	<b>Additional guidance</b>
10	535	P1  P1  A1	for a start to the process eg $1280+640+220 (=2140)$ <b>or</b> $1280\div 4 (=320)$ <b>or</b> $640\div 4 (=160)$ <b>or</b> $220\div 4 (=55)$  for a full process to find cost per adult eg “2140” $\div 4$ <b>or</b> “320” + “160” + “55”  cao SC: B1 for answer of 1495 if P0 scored	Can have arithmetical error as long as the complete processes, in the correct order, are present.
11 (a)	Example	C1	for a correct example, eg $3 \times 4 = 12$ or $12 \div 3 = 4$ <b>or</b> a statement eg ‘3 is a factor of 12’ or ‘1 is a factor of every number’	This may be seen, for example, in a factor tree or in a list of factors, but there must be no incorrect factors on the tree or in the list
(b)	Example	C1	for an example, eg 23 <b>or</b> a statement eg. ‘the tens digit may be even’ or ‘the last digit only needs to be odd’	



**Paper: 1MA1/1F**

Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	100	B1	for answer in the range 95 to 100	
(b)	660	M1	for reading at least 3 of the required figures from the graph eg 3 of “100”, 260, 120, 340, 160, 440 <b>OR</b> for 260 – “100” (= 160) <b>or</b> 340 – 120 (= 220) <b>or</b> 440 – 160 (= 280) <b>OR</b> for “100” + 60 (= 160) <b>or</b> 80 + 100 + 40 (= 220) <b>or</b> 40 + 100 + 100 + 40 (= 280)	Figures may be seen on graph
(c)	Tablets and statement	B1 C1	(dep) for adding their 3 differences eg “160” + “220” + “280” A1 for 660 or ft their answer to part (a) B1 Tablets C1 Statement eg the bars get proportionally longer over time (most in 2017 and least in 2015) <b>or</b> they (more than) double each year <b>or</b> for an increase of 280 <b>or</b> numbers range from 60 to 340	Values quoted for tablets must be correct. Ignore any calculations relating to laptops and/or desktop computers whether correct or not. Award previous mark if “tablets” is not specifically stated but can be implied from statement.
(d)	Statement (supported)	C1	for statement, eg (No because) we do not know costs or prices or profit.	Answer of ‘Yes’ gets C0 Answer of ‘No’ without justification gets C0

**Paper: 1MA1/1F**

Question	Answer	Mark	Mark scheme	Additional guidance
13	3	P1  P1  A1	for a start to the process eg $240 - (2 \times 45) (= 150)$ oe <b>or</b> $(2 \times 45) + 40 (= 130)$ oe  for complete process eg “150” $\div 40 (= 3.75)$ – can be implied by $40 + 40 + 40 = 120$ <b>or</b> “130” $+ 40 + 40 (= 210)$  cao	Considering just one piece of 45 cm is not a misread but $(240 - 45) \div 40 (= 4.875)$ oe should be awarded P1 only
14	Isabel (supported)	P1  P1  A1  C1	for process to work with $\frac{3}{4}$ eg $1 - \frac{3}{4} (= \frac{1}{4})$ oe, eg 25% or $\frac{25}{100}$ <b>or</b> $\frac{3}{4} = 75\%$ or $\frac{75}{100}$ <b>or</b> value of salary (say 1000) $\times 3 \div 4 (= 750)$  for process to work with ratio 3 : 7 eg $\frac{3}{3+7}$ oe <b>or</b> $\frac{7}{3+7}$ oe <b>or</b> value of salary (say 1000) $\div (3+7) (= 100)$  for (28(%)), 25(%) and 30(%) <b>or</b> 72(%), 75(%), 70(%) <b>or</b> 0.28, 0.25, 0.3 <b>or</b> for using value of salary (say 1000) giving 280, 250, 300 <b>or</b> 720, 750, 700	“Isabel” alone without supported evidence, gets 0 marks.

**Paper: 1MA1/1F**

Question	Answer	Mark	Mark scheme	Additional guidance
15	24	M1  A1	for method to find 15% of 160, eg $160 \times \frac{15}{100}$ oe (= 24) <b>or</b> $10\% = 160 \div 10 (= 16)$ plus $5\% = "16" \div 2 (= 8) (= 24)$  cao SC B1 for answer of 136 or 184 if M0 scored	When using partitioning methods, the method to find individual %s must be clear including the need to show an intention to sum eg. $10\% = 16 + 5\% = 8$
16 (a)	14	M1  A1	for $4 \times 5$ and $3 \times -2$ , the substitution may be seen in two separate calculations, eg $4 \times 5 (= 20)$ and $3 \times -2 (= -6)$  cao	Note: $4e^2 + 8e = 12e^3$ for example gets B1 only  Showing $\div 3$ by each side of equation is sufficient
(b)	$4e^2 + 8e$	B2  (B1	for $4e^2 + 8e$  for $4e^2$ or $8e$ )	
(c)	11	M1  A1	for a correct first step eg $3 \times m - 3 \times 4 = 21$ oe <b>or</b> $m - 4 = 21 \div 3 (= 7)$ oe  cao	
17	1 : 3	M1  A1	for $\frac{1}{4} : \frac{3}{4}$ oe <b>OR</b> for any correct un-simplified ratio, eg $25 : 75$  cao SC: B1 for an answer of $3 : 1$ or $1 : \frac{1}{3}$ if M0 scored	Ignore 'units' such as 1 nuts : 3 no nuts $1 : 3n$ gets M1A0

**Paper: 1MA1/1F**

Question	Answer	Mark	Mark scheme	Additional guidance
18 (a)	15, 17, 19, 20, 21, 23, 25	M1	for listing either set eg 15,20,25 <b>or</b> 15,17,19,21,23,25 with no incorrect numbers	The ‘lists’ may be seen in a Venn Diagram or in the working space in part (b) provided they are not contradicted by incorrect lists in part (a)  If repeats (but no incorrect numbers) award M1 only.
		A1	15,17,19,20,21,23 and 25 with no repeats	
(b)	Statement or 15 and 25	C1	eg odd multiples of 5 (between 14 and 26) oe NB Could be a general description, eg numbers that are in both (A and B), <b>or</b> 15 and 25 (ft from their sets A and B in part (a)) <b>or</b> numbers ending in 5 (between 14 and 26)	
19 (a)	$\frac{95}{28}$	M1	for a method to add using common denominators with at least one fraction correct (matching numerator with common denominator) eg $\frac{60}{28} + \frac{35}{28}$ <b>or</b> $(2)\frac{4}{28} + (1)\frac{7}{28}$	Use of decimals gets no credit unless it leads to a correct fraction  Use of decimals gets no credit unless it leads to a correct fraction
		A1	$\frac{95}{28}$ oe eg $3\frac{11}{28}$	
(b)	$1\frac{3}{5}$	M1	for $\frac{6}{5} \times \frac{4}{3}$ <b>or</b> $\frac{24}{20} \div \frac{15}{20}$ <b>or</b> $\frac{8}{5}$ oe eg $1\frac{9}{15}$	
		A1	cao	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
20	140	P1	for beginning to solve the problem eg $50 \div 5 \times 8 (= 80)$ <b>or</b> $14 : 8 : 5$ oe <b>or</b> $14 : 8$ and $8 : 5$ oe (linked)	80 may be seen in the ratio $80 : 50$
		P1	for a full process to solve the problem eg “80” $\div 4 \times 7$ <b>or</b> $\frac{50}{5} \times “14”$ <b>or</b> $140 : 80 : 50$	
		A1	cao	If 140 clearly identified as houses in working award full marks
21	30	P1	for full process to find the number of bags sold eg $5 \times 1000 \div 250 (= 20)$  <b>OR</b> for process to find selling price of 1 kg of sweets eg $0.65 \times 4 (= 2.60)$	This could be by repeated addition  Calculations can be in £ or pence
		P1	for [number of bags] $\times 0.65$ <b>or</b> “20” $\times 0.65 (= 13)$ <b>or</b> “2.60” $\times 5 (= 13)$  <b>OR</b> for $10 \div “20”$ oe (= 0.50)  <b>OR</b> for $0.65 \times 4 (= 2.60)$ <b>and</b> $10 \div 5 (= 2)$	[number of bags] can only come from $5 \times 10 \div 250 (= 0.2)$ or $5 \times 100 \div 250 (= 2)$ or $5 \div 250 (= 0.02)$
		P1	(dep on previous P1) for a process to find the percentage profit eg “13” $- 10) \div 10 \times 100$ <b>or</b> $(0.65 - “0.50”) \div “0.50” \times 100$ <b>or</b> $(“2.60” - “2”) \div “2” \times 100$  <b>OR</b> “13” $\div 10 \times 100 (= 130)$ oe	3/10 or 0.3 is not enough but should be awarded 2 marks  Award P3 for 130(%)
		A1	cao	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
22 (a)	Estimated value	P1	for using a rounded value in a correct process eg $3000 \div 15$ <b>or</b> $15 \times 8$ <b>or</b> $20 \times 8$	Their rounded value must be used in a calculation  Rounding may appear after a correct process eg $15.12 \times 8 = 120.96 \approx 100$ followed by eg $3069.25 \div 100$
		P1	for a full process to find the number of days eg “3000” $\div$ “15” $\div$ “10” (= 20) <b>or</b> “3000” $\div$ “15” $\div$ 8 (= 25)	Accept $3069.25 \div 15.12 \div 8$ oe
(b)	Explanation	A1	for a correct answer following through their rounded values	
		C1	eg less days required <b>or</b> it doesn't affect the answer because I would still round 16.27 down to 15 (or up to 20)	Refers to time taken

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
23 (a)	isosceles triangle, base 6 cm, height 4 cm	M1	for drawing an isosceles triangle <b>or</b> for drawing a triangle of base 6cm and height 4cm	Accept a freehand drawing Only a single triangle is acceptable; do <b>not</b> accept any attempted nets or 3-D diagrams  Condone a perpendicular drawn from base to vertex
		A1	for a fully correct diagram	
(b)	96 cm <sup>2</sup>	M1	for a method to find the area of a triangular face eg $\frac{1}{2} \times 6 \times 5 (= 15)$	Ignore incorrect or absent units for this mark [The SC is from: $4 \times \frac{1}{2} \times 6 \times 4 + 6 \times 6$ ]  Ignore incorrect or absent numerical answer for this mark
		M1	(dep) for finding the total surface area eg $4 \times "15" + 6 \times 6$	
		A1	for a numerical answer of 96  SC B1 for an answer of 84 if M0 scored	
		B1	cm <sup>2</sup>	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
24	(22, 20)	P1	for process to find width or height of diagram eg $38 - 6 (= 32)$ <b>or</b> $36 - 7 (= 29)$	Figures may be shown on the diagram  If $(6 + 38) \div 2$ leads to an answer other than 22, award P2 only  Award for P3 for $(22, y)$ or $(x, 20)$ or $x = 22$ or $y = 20$
		P1	for process to find length of side of square eg " $32$ " $\div 4 (= 8)$  <b>or</b> process to find half width of diagram eg " $32$ " $\div 2 (= 16)$	
		P1	for process to find $x$ coordinate eg $6 + 2 \times "8" (= 22)$ <b>or</b> $6 + "16" (= 22)$ <b>or</b> $(6 + 38) \div 2 (= 22)$	
		P1	for process to find $y$ coordinate eg $36 - 2 \times "8" (= 20)$ <b>or</b> $36 - "16" (= 20)$ <b>or</b> $7 + 8 + "29" - 3 \times "8" (= 20)$	
		A1	cao  SC: award 4 marks for $(20, 22)$	



Paper: 1MA1/1F																				
Question	Answer	Mark	Mark scheme	Additional guidance																
25	Line drawn	B3  (B2)	for a correct line between $x = -3$ and $x = 3$  for a correct straight-line segment through at least 3 of $(-3, 13), (-2, 9), (-1, 5), (0, 1), (1, -3), (2, -7), (3, -11)$  <b>or</b> for all of these points plotted but not joined  <b>or</b> for a line drawn with a negative gradient through $(0, 1)$ <b>and</b> clear intention to use a gradient of $-4$ , eg line through $(0,1)$ and $(0.5, -1)$	Ignore any incorrect points  Table of values <table border="1"> <tr> <td><math>x</math></td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td><math>y</math></td> <td>13</td> <td>9</td> <td>5</td> <td>1</td> <td>-3</td> <td>-7</td> <td>-11</td> </tr> </table>	$x$	-3	-2	-1	0	1	2	3	$y$	13	9	5	1	-3	-7	-11
$x$	-3	-2	-1	0	1	2	3													
$y$	13	9	5	1	-3	-7	-11													
		(B1)	for at least 2 correct points stated or plotted <b>or</b> for a line drawn with a negative gradient through $(0, 1)$ <b>or</b> a line with gradient $-4$ )	Ignore any incorrect points coordinates may be in a table or in working																
26	$\begin{pmatrix} 9 \\ 11 \end{pmatrix}$	M1  A1	for $\begin{pmatrix} 2 \times 5 \\ 2 \times 2 \end{pmatrix} [= \begin{pmatrix} 10 \\ 4 \end{pmatrix}]$ or $2 \times 5 - 1 (= 9)$ or $2 \times 2 + 7 (= 11)$																	
			cao																	

## Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:

Angles:  $\pm 5^\circ$

Measurements of length:  $\pm 5$  mm

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Paper: 1MA1/1F			
Question		Modification	Mark scheme notes
2	(a)	Wording 'five' added	Standard mark scheme
2	(b)	Wording 'four' added	Standard mark scheme
6	(b)	Change to $n$	Standard mark scheme but $a$ changed to $n$
7		Probability scale enlarged and crosses changed to solid circles; Lines at zero, a half and 1 lengthened	Standard mark scheme
9	(a)	Diagram enlarged. Wording added 'It shows a circle.' Deleted wording 'cross (x).' replaced with 'solid dot.' Cross changed to solid dot.	Standard mark scheme
9	(b)	Diagram enlarged	Standard mark scheme

**Paper: 1MA1/1F**

Question	Modification	Mark scheme notes
12	Diagram enlarged. Right axis labelled. Key moved above and to the left of the diagram. Vertical axis label moved above the vertical axis. Shading changed. Intermediates added on both the horizontal and vertical axes. Graph lines changed as follows: 2015 – Laptops changed from 260 to 250; Tablets changed from 260 to 250 and 320 to 300. 2016 – Desktops changed from 120 to 100; Laptops changed from 120 to 100 and 340 to 350. 2017 - Desktops changed from 160 to 150; Laptops changed from 160 to 150 and 440 to 450 Tablets changed from 440 to 450 and 780 to 800	(a) Standard mark scheme (b) M1 for reading at least 3 of the required figures from the graph eg. 3 of 100, 250, 100, 350, 150 or 450 or finding 2 differences from 250 – 100 (= 150), 350 – 100 (= 250), 450 – 150 (= 300) M1 (dep) for complete method shown eg 150 + 250 + 300 A1 cao for 700

Question	Modification	Mark scheme notes																				
<p>12 cont.</p>	<div data-bbox="365 308 651 501" style="border: 1px solid black; padding: 5px;"> <p><b>Key:</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></span> desktop computers</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; background-color: white;"></span> laptops</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px);"></span> tablets</li> </ul> </div> <div data-bbox="353 523 1232 1305" style="margin-top: 10px;"> <p>Number sold</p> <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse; text-align: center;"> <caption>Data extracted from the stacked bar chart</caption> <thead> <tr> <th>Year</th> <th>Desktop Computers</th> <th>Laptops</th> <th>Tablets</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>100</td> <td>150</td> <td>50</td> <td>300</td> </tr> <tr> <td>2016</td> <td>100</td> <td>250</td> <td>150</td> <td>500</td> </tr> <tr> <td>2017</td> <td>150</td> <td>300</td> <td>350</td> <td>800</td> </tr> </tbody> </table> </div>	Year	Desktop Computers	Laptops	Tablets	Total	2015	100	150	50	300	2016	100	250	150	500	2017	150	300	350	800	
Year	Desktop Computers	Laptops	Tablets	Total																		
2015	100	150	50	300																		
2016	100	250	150	500																		
2017	150	300	350	800																		

Paper: 1MA1/1F			
Question		Modification	Mark scheme notes
16	(a)	MLP only: $x$ and $y$ changed to $s$ and $t$ .	Standard mark scheme, except for MLP in the mark scheme read $s$ for $x$ , and $t$ for $y$ .
16	(b)	Braille only: $e$ changed to $q$ .	Standard mark scheme, except for Braille in the mark scheme read $q$ for $e$
23	(a)	<p>Model and a diagram provided. Diagram enlarged. Dashed lines made longer and thicker. Dotted lines made more obvious.</p> <p>Question reversed: Four different options of the front view of the pyramid have been provided. The pyramid has been put on page one for question 23(a) and the four shapes labelled A to D have been put on page two for question 23(a).</p> <p>Question changed to 'Look at the model or at the diagrams for Question 23(a) in the Diagram Book. They are shown on two pages in the Diagram Book.</p> <p>Page one shows a solid square-based pyramid, VABCD.</p> <p>The base of the pyramid is a square of side 6 cm. The height of the pyramid is 4 cm. M is the midpoint of BC and <math>VM = 5</math> cm.</p> <p>Page two for Question 23 shows four shapes, labelled A, B, C and D. Each square represents a one centimetre square.</p> <p>Which shape shows the accurate front elevation of the pyramid from the direction of the arrow?' </p>	<p>Award 1 mark for an answer of D</p> <p>Award 2 marks for an answer of C</p> <p>NB: Accept any other unambiguous indication of the answer such the diagram indicated by circling etc.</p>

Question	Modification	Mark scheme notes
23 cont.	<p data-bbox="916 309 1167 336">Question 23 – page two</p> <p data-bbox="786 355 1296 383">Each square represents a one centimetre square.</p> <div data-bbox="369 309 1344 1364"><p>The diagram shows four shapes on a grid where each square is 1 cm by 1 cm:</p><ul style="list-style-type: none"><li><b>A:</b> A diamond shape (square rotated 45 degrees) with a side length of 5 units. Inside it is a 5x5 square.</li><li><b>B:</b> A 5x5 square.</li><li><b>C:</b> A triangle with a base of 5 units and a height of 5 units.</li><li><b>D:</b> A triangle with a base of 5 units and a height of 4 units.</li></ul></div>	

<b>Paper: 1MA1/1F</b>		
<b>Question</b>	<b>Modification</b>	<b>Mark scheme notes</b>
24	Diagram enlarged. Crosses changed to solid dots. Wording changed to 'It shows a pattern made from four identical squares.'	Standard mark scheme
25	Diagram enlarged. Y axis has been cut to go from -14 to 14.	Standard mark scheme



**Pearson**  
**Edexcel**

# **Mark Scheme (Results)**

**Summer 2018**

**Pearson Edexcel GCSE (9 – 1)**  
**In Mathematics (1MA1)**  
**Foundation (Calculator) Paper 2F**



Paper: 1MA1/2F					
Question		Answer	Mark	Mark scheme	Additional guidance
1		8	B1	cao	
2		1.6	B1	cao	
3		243	B1	cao	
4		Suitable number eg. 564 000	B1	for a suitable 6 digit number with 4 as thousands digit	Can be a decimal eg 4652.99, 4625.90
5	(a)	350	B1	cao	Accept trailing zeros eg 350.0
	(b)	7.7	B1	cao	Accept trailing zeros eg 7.70
	(c)	320	B1	cao	Accept trailing zeros eg 320.0
6		3 and 9	P1 A2 (A1)	for starting to list factors of 36 <b>or</b> multiples of 3 <b>or</b> odd numbers cao for one correct answer)	Must be at least 3. In either order
7		(MYL) (MLY) (YML) (YLM) (LMY) (LYM)	M1 A1	for at least 3 correct different combinations fully correct list with no extras or repeats	for M1 ignore extras or repeats; accept words or unambiguous abbreviations

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
8	19.85	P1  P1  P1  P1  A1	<p>for a start to the process eg <math>30 \div 6 (=5)</math> <b>or</b> <math>30 \div 15 (=2)</math> <b>or</b> <math>30 \div 10 (=3)</math> <b>OR</b> <math>30 \times 37 (=1110)</math> <b>OR</b> <math>82 \div 6 (=13.6 \text{ to } 13.7)</math> <b>or</b> <math>45 \div 15 (=3)</math> <b>or</b> <math>1.25 \div 10 (=0.125)</math></p> <p>for process to find cost of 30 pens <b>or</b> 30 pencils <b>or</b> 30 rulers eg "<math>5</math>" <math>\times 82 (= 410)</math> <b>or</b> "<math>2</math>" <math>\times 45 (= 90)</math> <b>or</b> "<math>3</math>" <math>\times 1.25 (= 3.75)</math> <b>OR</b> "<math>13.6..</math>" <math>\times 30 (=409.8 \text{ to } 410)</math> <b>or</b> "<math>3</math>" <math>\times 30 (=90)</math> <b>or</b> "<math>0.125</math>" <math>\times 30 (=3.75)</math></p> <p>for a process to find cost of 2 of 30 pens <b>or</b> 30 pencils <b>or</b> 30 rulers eg any 2 of "<math>5</math>" <math>\times 82 (= 410)</math> , "<math>2</math>" <math>\times 45 (= 90)</math> , "<math>3</math>" <math>\times 1.25 (= 3.75)</math></p> <p>for adding at least 3 different costs (units may not be consistent) eg "<math>410</math>" + "<math>90</math>" + "<math>3.75</math>" <b>or</b> "<math>410</math>" + "<math>90</math>" + "<math>11.10</math>"</p> <p>cao</p>	<p>Work may be in pence or in pounds</p> <p>Intention to add not necessary eg 410, 3.75 is sufficient, or working leading to these figures Any two correct methods will imply P1P1P1</p> <p>Correct working for 3 of pens, pencils, rulers and pencil cases with an intention to add, may be in a mixture of money units</p>
9	(a) 62  (b) 232	M1 A1  M1 A1	<p>for distance <math>\div</math> time eg <math>186 \div 3</math> <b>or</b> <math>186 \div (3 \times 60)(=1.03..)</math></p> <p>cao</p> <p>for speed <math>\times</math> time eg <math>58 \times 4</math> <b>or</b> <math>58 \times 4 \times 60 (=13920)</math></p> <p>cao</p>	<p>May use hours or minutes at this point</p> <p>May use hours or minutes at this point</p>

Paper: 1MA1/2F					
Question		Answer	Mark	Mark scheme	Additional guidance
10	(a)	23, 29	B2	for 23 <b>and</b> 29 <b>and</b> no extras	2 correct and 1 incorrect award B1  Decision is required may be yes or implied by she is ... oe. Do not accept statements that are ambiguous, or contradictory
	(b)	Explanation	(B1) C1	for one correct <b>and</b> no more than one incorrect) for decision <b>and</b> explanation eg yes and because all other even numbers have 2 as a factor	
11	(a)	17	B1	cao	
	(b)	12	B1	cao	
	(c)	5.5	B1	Accept $\frac{11}{2}$ , $5\frac{1}{2}$ oe	
12		Correct pie chart	M1  A1  A1	for method to find at least one angle eg B: $360 \div "36" \times 11 (= 110)$ <b>or</b> P: $360 \div "36" \times 17 (= 170)$ <b>or</b> HD: $360 \div "36" \times 8 (= 80)$ for at all 3 angles correctly calculated <b>OR</b> at least one accurately drawn angle for a fully correct labelled pie chart	Accept numbers if present in Number of fan column eg 0 added to a number is acceptable for this mark.  Labels as "snacks" from table not just angle size.

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
13	$\frac{338}{350}$	M1  A1	for $350 - 12 (=338)$ <b>or</b> $\frac{y}{350}$ oe where $y < 350$ <b>and</b> $y \neq 12$ <b>or</b> $1 - \frac{12}{350}$ oe oe	For the method mark probability fractions can be expressed as equivalent expressions, even if not correct probability notation eg. 338 : 350 scores M1 A0  Using correct probability notation Allow 0.96 to 0.97 or 96% to 97%
14	4 22 45 18 7 23 16	C1  C1  C1	for correctly placing at least one piece of data (22 or 16) <b>OR</b> for finding at least one unknown piece of data (4, 18, 7 or 23)  for correctly placing at least one piece of data (22 or 16) <b>and</b> for finding at least one unknown piece of data (4, 18, 7 or 23)  for a complete correct tree.  <b>SC C2</b> if all 6 figures are shown as the numerator of fractions in the correct places	Unknown figures may be seen in working and need not be on the diagram  Award of this mark implies the first C1
15	(a) Correct evaluation  (b) Correct or corrected reasoning given	C1  C1	for explanation eg $x$ is not a base angle or states $x = 54^\circ$  eg (because) alternate angles are equal, <b>or</b> Allied angles / Co-interior angles add up to 180 <b>or</b> they are not corresponding (they are alternate) <b>OR</b> selects correct reason used by William	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
16	5	P1  P1  A1	<p>for start to process eg <math>7 \times 20 (= 140)</math> <b>and</b> <math>3 \times 21 (= 63)</math> <b>or</b> <math>(7 \times 20) + (3 \times 21) + 22 (= 225)</math></p> <p>for a complete process to find the missing frequency eg <math>(320 - "225") \div 19</math> <b>or</b> <math>320 - "225" = (95)</math> <b>and</b> <math>"95" \div 19</math></p> <p>cao</p>	<p>May be written near table <math>7 \times 20 (= 140)</math> <b>and</b> <math>3 \times 21 (= 63)</math> minimum requirement for P1</p> <p>May be seen as two calculations</p> <p>Please check the table. Correct answer in the table without working award 3 marks</p>
17	90	P1  P1  A1	<p>for a process to find the number of batches for at least 2 ingredients, eg <math>900 \div 225 (= 4)</math> <b>or</b> <math>1000 \div 110 (= 9.09..)</math> <b>or</b> <math>1000 \div 275 (= 3.6.....)</math> <b>or</b> <math>225 \div 75 (= 3)</math> <b>OR</b> A full method to find the maximum number of biscuits for 1 ingredient eg <math>900 \div 225 \times 30</math> <b>OR</b> Amount required for 1 biscuit for at least 2 ingredients eg <math>225 \div 30 (= 7.5)</math> <b>or</b> <math>110 \div 30 (= 3.6..)</math> <b>or</b> <math>275 \div 30 (= 9.1..)</math> <b>or</b> <math>75 \div 30</math> <math>(= 2.5)</math> <b>OR</b> Amount required for 3 batches for at least 2 ingredients eg <math>225 \times 3 (= 675)</math> <b>or</b> <math>110 \times 3 (= 330)</math> <b>or</b> <math>275 \times 3 (= 825)</math> <b>or</b> <math>75 \times 3 (= 225)</math></p> <p>(dep P1) for a complete process to find the maximum number of biscuits after considering at least 3 different ingredients eg <math>"3" \times 30</math></p> <p>(dep P2) cao from fully correct working</p>	<p>They must use their smallest multiplier after considering at least 3 different ingredients</p> <p>90 without working award no marks</p>

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	Correct description	B2  (B1)	reflection <b>and</b> $y$ axis <b>or</b> reflection <b>and</b> $x = 0$  reflection <b>or</b> $y$ axis <b>or</b> $x = 0$ )	If more than 1 transformation given award B0
19	4378.2(0)	P1  P1  P1  P1  A1	for a process to find the circumference of the circle <b>or</b> the semi circle, eg $\pi \times 50$ (= 157.0796327) <b>or</b> $0.5 \times \pi \times 50$ (= 78.53981634)  for a complete process to find the perimeter of the field, eg $(0.5 \times \pi \times 50) + 50$ (= 128.5...) <b>OR</b> for working with one cost eg “157.07...” $\times$ 29.86 (= 4690.11..) <b>or</b> “78.5...” $\times$ 29.86 (= 2345.198...) <b>or</b> $50 \times 29.86$ (=1493) <b>or</b> $3 \times 180$ (= 540)  For finding the costs of two different aspects eg 2 of “78.5...” $\times$ 29.86 (= 2345.1..) <b>or</b> $50 \times 29.86$ (= 1493) <b>or</b> $3 \times 180$ (= 540)  for a adding at least 2 costs eg “2345.1..” + “540” (=2885.1..) <b>or</b> “1493” + “540” (=2033) <b>or</b> “128.5...” $\times$ 29.86 (= 3838.2..)  for answer in the range 4377 – 4392	Figures may be truncated or rounded  May use circle at this point, figures imply method One cost is 1 length or labour Figures may be truncated or rounded  Two different aspects means arc and straight edge or arc and labour or straight edge and labour Condone circle and labour or circle and straight edge.  Finding the cost of the perimeter is two costs added and so implies the previous P1 The circle is not allowed to be counted as one of the two costs for this mark

Paper: 1MA1/2F					
Question		Answer	Mark	Mark scheme	Additional guidance
20	(a)	$m^7$	B1	cao	Allow multiplication signs  $125n^3p^x$ or $125n^x p^9$ where $x \neq 0$ or $an^3p^9$ where $a$ is a number  Allow multiplication signs  $8q^6r^x$ or $8q^x r^3$ where $x \neq 0$ or $aq^6r^3$ where $a$ is a number
	(b)	$125n^3p^9$	B2	cao	
			(B1)	for 2 of 3 terms correct in a single product)	
	(c)	$8q^6r^3$	B2	cao	
			(B1)	for 2 of 3 terms correct in a single product)	
21	(a)	280	M1	for listing at least 3 multiples of both 40 and 56 <b>OR</b> finds the prime factors of both 40 and 56	
			A1	cao	
	(b)	60	B1	60 <b>or</b> $2^2 \times 3 \times 5$ oe	$2^2, 3, 5$ not enough ie must be a product
22		$y = 3x - 6$	M1	for a correct method to find the gradient of the line, or $m = 3$ <b>OR</b> identifies $-6$ as the intercept in words or in a partial equation <b>OR</b> $y - b = m(x - a)$ where $m \neq 3$ and $(a, b)$ is a correct coordinate	Just ringing $-6$ is insufficient
			M1	for $y = 3x + c$ <b>or</b> (L=) $3x - 6$ <b>or</b> $y = "3"x - 6$ <b>OR</b> $y - y_1 = 3(x - x_1)$ <b>or</b> $y - b = "3"(x - a)$ where $(a, b)$ is a correct coordinate	Award of this mark implies the first M1 $c$ must be seen either as a letter or a number
			A1	accept $y = 3x + -6$ oe	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
23	3 : 5	P1  P1  P1  P1  A1	<p>for process to find 20% <b>or</b> 120% of the cost, eg <math>8500 \times 0.2</math> (= 1700) <b>oe or</b> <math>8500 \times 1.2</math> (= 10 200) <b>oe</b></p> <p>for process to find total cost of payments, eg <math>12 \times 531.25</math> (= 6375)</p> <p>for complete process to find value of deposit, eg “10 200” – “6375” (= 3825) <b>or</b> <math>8500 - “6375”</math> (=2125) <b>and</b> “2125” + “1700” (=3825) <b>OR</b> the deposit as a proportion of the total cost, eg <math>1 - \frac{“6375”}{“10200”}</math> (<math>=\frac{3}{8}</math>)</p> <p>for finding a correct un-simplified ratio, eg “3825” : “6375” <b>oe or</b> 5:3 <b>or</b> <math>1.6 : 1</math> <b>or</b> <math>\frac{5}{3} : 1</math></p> <p>Accept 1: <math>1.6</math>, <math>1 : \frac{5}{3}</math></p>	<p>When partitioning all figures quoted must be correct or a full method shown eg <math>10\% = 8500 \div 10</math> (=850) and <math>20\% = “850” + “850”</math> (=1700)</p> <p>May be seen as a fraction of the total eg <math>\frac{3825}{10200}</math> (<math>=\frac{3}{8}</math>)</p> <p>Figures at this stage must be expressed as part of a ratio eg 51:85, <math>\frac{3}{8} : \frac{5}{8}</math> Ignore consistent units</p>
24	(a) 0, -4, -6, -4, 0  (b) Graph  (c) 2.6 and -1.6	B2 (B1)  M1 A1  M1  A1	<p>fully correct figures (At least 2 correct figures)</p> <p>(dep B1) for at least 5 points correctly plotted ft from (a) fully correct graph</p> <p>for <math>y = -2</math> drawn <b>or</b> intersections with <math>y = -2</math> <b>or</b> <math>y = x^2 - x - 4</math> drawn <b>or</b> 1 correct value</p> <p>ft a quadratic graph <b>or</b> for answers in the range 2.5 to 2.7 <b>and</b> -1.5 to -1.7</p>	<p>Must be a curve</p> <p>If answers stated as coordinates, award M1 for both coordinates and M0 for one coordinate</p>



Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	No (supported)	P1  P1  A1	<p>For a process to calculate the initial or new pressure, eg <math>(70 + 10) \div (20 + 10)</math> (=2.6 to 2.7) <b>or</b> <math>80 \div 30</math> (=2.6 to 2.7) <b>or</b> <math>70 \div 20</math> (=3.5)</p> <p>For a complete process to make a comparison eg. <math>0.8 \times "3.5"</math> (=2.8) <b>OR</b> <math>\frac{("3.5" - "2.6")}{"3.5"} \times 100</math> (=22 to 26) <b>OR</b> <math>"3.5" \times 0.2</math> (=0.7) <b>and</b> <math>80 \div 30</math> (=2.6 to 2.7) <b>OR</b> <math>\frac{"2.6"}{"3.5"} (\times 100)</math> (=0.74 to 0.78 <b>or</b> 74 to 78)</p> <p>for a correct conclusion supported by accurate figures eg 2.8 <b>and</b> 2.6(6...) <b>OR</b> decrease is 24% (or 22% to 26%) <b>OR</b> 0.7 <b>and</b> 2.6 to 2.7 <b>and</b> 3.5 <b>OR</b> 0.7 <b>and</b> 0.9 <b>OR</b> 0.76 (or 0.74 to 0.78) <b>OR</b> 76% (or 74% to 78%)</p>	<p>Accept any value in the range 2.6 to 2.7 if unsupported by working</p> <p>Allow truncation or rounding of figures</p>

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
26	280	P1	for starting to use Pythagoras to find the missing side eg $8.4^2 - 7.2^2 (= 18.72)$	Award P1 for a correct Pythagorean statement eg $x^2 + 7.2^2 = 8.4^2$
		P1	for a complete process to find the missing side eg $\sqrt{70.56 - 51.84}$ <b>or</b> $\sqrt{18.72}$ (=4.32....)	4.3 truncated or rounded can imply P2
		P1	(dep P1) for a process to find the area of the triangular face eg [length of base] $\times$ 7.2 $\div$ 2 (=15.57.. <b>OR</b> the volume of the cuboid eg [length of base] $\times$ 7.2 $\times$ 18 (=560.7..)	Uses a figure they show as the length of the base of the right angled triangle but dep on P1 Allow 15.57.. truncated or rounded if unsupported
		P1	for a complete process to find the volume of the prism eg "15.5.." $\times$ 18 <b>or</b> "560.7.." $\div$ 2	
		A1	answer in the range 278 – 281	If an answer is given in the range 278 to 281 but then incorrectly given to 3 sig fig this mark can still be awarded.

## Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:

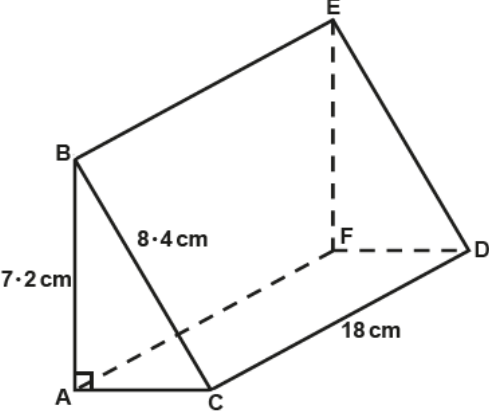
Angles:  $\pm 5^\circ$

Measurements of length:  $\pm 5$  mm

Paper: 1MA1/2F		
Question	Modification	Mark scheme notes
7	9 rows have been added to the table. Wording added 'You may not need to use all the rows.'	Standard mark scheme
8	Horizontal lines added to the information.	Standard mark scheme
11	(a) MLP only: $x$ changed to $t$	Standard mark scheme but for MLP $x$ changed to $t$
11	(c) Braille only: $f$ changed to $m$	Standard mark scheme but for Braille $f$ changed to $m$
12	Diagram enlarged. 10 degree markings and a dot at the centre have been added to the pie chart.	Standard mark scheme
14	Diagram enlarged. Wording added 'There are six spaces to fill.' Braille will label the answer spaces as shown below.  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">(i)</div> <div style="text-align: center;">(iii)</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">(ii)</div> <div style="text-align: center;">(iv)</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">45</div> <div style="text-align: center;">(v)</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">(vi)</div> </div>	Standard mark scheme

**Paper: 1MA1/2F**

Question		Modification	Mark scheme notes
15	(a)	Diagram enlarged. Angles moved outside of the angle arcs, and the arcs have been made smaller. Lines have been made longer. Wording added 'The diagram shows triangle ABC. AC = BC Angle ABC = 63° Angle ACB is marked x.'	Standard mark scheme
15	(b)	Diagram enlarged. Angles moved outside of the angle arcs, and the arcs have been made smaller. Arrows have been made longer Wording added 'In the diagram, DE is parallel to FGH. Angle DEG = 57° Angle FGE is marked y.'	Standard mark scheme
16		Wording added 'There is one space to fill.' Braille will label the answer space (i).	Standard mark scheme
17		Horizontal lines added to the information.	Standard mark scheme
18		Diagram enlarged. Shading changed to dotted shading. y axis cut to go from -2 to 5. Shapes labelled 'shape A' and 'shape B'.	Standard mark scheme
19		Diagram enlarged	Standard mark scheme
22		Diagram enlarged	Standard mark scheme
24	(a)	Table has been turned to vertical format and left aligned. Wording added 'There are five spaces to fill.' Braille will label answer spaces (i) to (v) from left to right.	Standard mark scheme
24	(b)	Diagram enlarged	Standard mark scheme

Question	Modification	Mark scheme notes
26	<p>Model provided for all candidates. Diagram enlarged and also provided for MLP.                      Dashes made longer and thicker. Edges of the prism have been labelled A to F.                      Wording added 'They show a right angled triangular prism.                      AB = 7.2 cm BC = 8.4 cm CD = 18 cm Angle BAC is a right angle.'</p> 	Standard mark scheme



Pearson  
Edexcel

## **Mark Scheme (Results)**

Summer 2018

Pearson Edexcel GCSE (9 – 1)  
In Mathematics (1MA1)  
Foundation (Calculator) Paper 3F

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	0.9	B1	cao	Accept with trailing 0s eg 0.90
2	30	B1	cao	Accept 30.0
3	2500	B1	cao	
4	(a)(i) 30 (ii) Explanation (b) 65	B1 C1 B1	cao for explanation, eg increase by 7, add 7, states $7n - 5$ cao	
5	(a) 974 (b) 16,28 or 18,26	B1 B1	cao for fully correct pair of numbers	
6	1, 2, 3, 5, 6, 10, 15, 30	B2 (B1	cao for at least 3 correct factors with no more than one incorrect answer)	Numbers may be shown in any order eg paired; Accept numbers repeated
7	24	M1 A1	for a complete method eg $6 \times 2 \times 2$ or sight of 6, 2, 2 ready for calculation, or with the wrong operation cao	Could be seen as two separate calculations SC:B1 for a answer of 1.5 oe
8	(a) 2.28 (b) 2.5604	B1 B2 (B1	cao cao for 6.6564 seen, or for 2.56 or for digits 25604)	If the correct answer is shown and then rounded, award full marks.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
9 (a)	40	B1	cao	
(b)	Yes (supported)	P1	for process shown to add a time to departure time eg $8.45 + 0.17$ or $8.45 + 0.15$ or $8.45 + 0.15 + 0.17$ <b>OR</b> for process to work out time at work after arrival at Manchester bus stop eg “9.35” + 15 <b>OR</b> finds accumulated additional time eg $17 + 15 (= 32)$ <b>OR</b> start to work backwards eg $10.00 - 0.15$	There must be some attempt to add but not necessarily complete or correct (eg 8.62). “9.35” must be a given time ie from 0905, 0935, 0955, 1010, 1025, or 1048. Process must be shown.
		P1	for process to use a bus time from Whitefield to Manchester with other times eg 0904 to 0935 with use of 17 or 15	Do not award in cases of ambiguity.
		C1	for conclusion of “Yes” supported by correct figures eg states 9.50 <b>or</b> comparable figures eg 9.35 and 25 (spare)	There needs to be a conclusion eg Yes or equivalent words supported by correct figures; if C mark fully evidenced award 3 marks.
		P1	<b>Alternative scheme</b> for process shown to find a duration of time using given figures eg 8.45 to 10.00, 8.34 to 9.05, 10.14 to 10.48	There must be some attempt to find a duration of time but not necessarily complete or correct. Process must be shown.
		P1	for process to find the total travelling time eg $17 + 31 + 15$ or $17 + 2 + 31 + 15$	31 can come from any bus apart from the last bus which is 34
		C1	for conclusion of “Yes” supported by correct figures eg comparable figures eg $65 < 75$ <b>or</b> $75 - 65 (= 10)$	There needs to be a conclusion eg Yes or equivalent words supported by correct figures; if C mark fully evidenced award 3 marks.



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
10	Shows earnings	M1  M1 C1	for a method to start to work out earnings eg $11.2 \times 8 (= 89.6)$ <b>or</b> $20 - 8 (= 12)$ <b>or</b> $8.4 \times 12 (= 100.8)$  for a complete method eg $11.2 \times 8 + 8.4 \times (20 - 8)$ <b>or</b> “89.6” + “100.8” <b>or</b> $200 - “89.6” - “100.8” (= 9.6)$ Shows earnings eg 190.4(0) <b>or</b> 9.6(0) with fully correct arithmetic	Accept calculations in pence, or £ written in decimal form.  Conclusion in figures; ignore written conclusion.
11	$\frac{40}{560}$ oe	M1  A1	for correct start to method eg $600 - 560 (= 40)$ <b>or</b> $\frac{600}{560}$ oe (= 1.07(14...))  <b>OR</b> correct answer but not a fraction eg 0.07(14...)  for any equivalent fraction to $\frac{40}{560}$ eg $\frac{1}{14}$	
12	69.2	B1  P1  P1  P1  A1	for a correct measurement of either length or width, eg 11.5 (cm) <b>or</b> 5.8 (cm)  for process to find actual dimensions, eg [length] $\times 200 (= 2300)$ <b>or</b> [width] $\times 200 (= 1160)$  (indep) for process to convert to metres [length in cm] $\div 100$ eg “2300” $\div 100 (= 23)$ <b>or</b> “1160” $\div 100 (= 11.6)$  (indep) for process to find the perimeter, eg “23” $\times 2 + “11.6” \times 2 (= 69.2)$ <b>or</b> “11.5” $\times 2 + “5.8” \times 2 (= 34.6)$  for an answer in the range 67.6 to 70.8	Allow measurements 11.3 to 11.7 cm and 5.6 to 6.0 cm NB: could work in mm [length] in the range 11.0 to 12.0 [width] in the range 5.0 to 6.5 NB: could work in mm This mark can be awarded for the conversion of any amount in cm to m (ie not from an area)  calculations could be in cm or in m and could be scaled or unscaled figures  SC: award 3 marks for an answer in the range 67.6 to 70.8 using measurements outside the above ranges

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
13	D, F, A	C2  (C1)	for all 3 correct  for 1 or 2 correct)	
14 (a)	6   4799 7   0015667 8   0011247 9   14	B2  (B1)	for correct ordered stem and leaf  for fully correct unordered or ordered with one error or omission)	
(b)	Explanation	B1  C1  C1	(indep) for key (units not required but must be correct if stated) eg 6   4 = 64 (marks)  for identifying "6" students failed (ft their diagram) <b>OR</b> for $20 \div 4 (= 5)$  for comparing $\frac{1}{4}$ with $\frac{6}{20}$ or $\frac{3}{10}$ (ft their diagram) <b>OR</b> for comparing "6" with 5	Explanation does not need to state that Omar is wrong, but just needs to provide two comparable values (that are not the same) unless ft values show that Omar is not wrong in which case a statement is needed.
15 (a)	Incorrect order of operation	C1	for identifying an incorrect order of operation, eg should be $12 - 8$ <b>or</b> "should multiply first"	Showing that $12 - 2 \times 4$ is 4 (and not 40) is insufficient for this mark; the explanation should focus on what Jenny has done wrong.
(b)	Statement	C1	for stating that the range is the difference between the greatest and least values, <b>or</b> stating that he didn't put numbers in order	Stating the correct calculation for the range ( $8 - 1$ ) or stating the (correct) range as 7 is sufficient for this mark.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
16 (a)	10	M1	for a start of method to find Bispah's share, eg $2.50 \times 8 (= 20)$ <b>or</b> $\frac{1}{2} \div \frac{1}{8} (= 4)$	Accept 10.00  Accept working in pence, or in £ given as a decimal oe NB: award this mark if the working is seen in part (a)  Accept 3:1 (correct answer in reverse order) which can also be an equivalent ratio to 3:1  Award full marks for 1 : 3 or an equivalent ratio. If an equivalent ratio to 1:3 is shown and then simplified incorrectly award full marks.
(b)	1 : 3	A1	cao	
		P1	for a process to find Chan's share, eg "20" – 2.5 – [Bispah's money] (=7.5) <b>or</b> $1 - \frac{1}{8} - \frac{1}{2} (= \frac{3}{8})$	
		P1	for a correct ratio eg 2.5 : "7.5" <b>or</b> $\frac{1}{8} : \frac{3}{8}$ <b>or</b> 3 : 1 oe	
		A1	for 1 : 3 oe eg 5 : 15	
17	6	P1	for a process to set up an equation in $x$ , eg $\frac{1}{2} \times 3x \times 3x = 162$	Must be a complete equation  Can fit their equation if a quadratic
		P1	for a process to simplify to $x^2$ eg $x^2 = 162 \times 2 \div 9$ or $x^2 = 36$	
		A1	cao	
18	$2.3 \times 10^6$	M1	for $2.3 \times 10^n$ where $n \neq 6$ <b>or</b> $23 \times 10^5$ or 2300000 <b>or</b> 2645000000 and 1150 seen	2300000 could be written as 2.3 million
		A1	cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
19 (a)	negative	B1	cao	Ignore any description of a relationship and any reference to strength of correlation
(b)	Explanation	C1	for a correct explanation, eg “not in line with the trend of the other points” “does not fit in with the correlation” “is far away from the other points or line of best fit”	
(c)	Comment	C1	for an explanation eg “point would be outside of the range of the scatter diagram”	
20	$9p + 13$	M1  A1	for method to expand one bracket, eg $5 \times p + 5 \times 3 (= 5p + 15)$ or $2 \times 1 - 2 \times 2p (= 2 - 4p)$ or $-2 \times 1 - 2 \times -2p (= -2 + 4p)$  cao	If an attempt is made to multiply by $-2$ in the second brackets then it must be done consistently.
21	Triangle of area 18	M1  A1	for a complete method to find area of trapezium eg $\frac{1}{2}(2 + 7) \times 4 (= 18)$ <b>OR</b> for a triangle drawn of area 36 <b>OR</b> for a triangle that would give an area ft their area of trapezium  for a triangle drawn of area 18 eg base = 6, height = 6 or base = 9, height = 4	The value for the area of the trapezium must be clear for the ft to be checked.  Accept use of dimensions that are not whole numbers as long as the intention is clear

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	Probabilities should sum to 1	C1	for stating that the probabilities should total 1 eg 0.25 should be 0.35	Can be shown on the diagram
	0.35 and 0.65 reversed	C1	for recognising that the 0.35 and 0.65 in the first branches for the 2nd throw should be reversed eg, “for the second throw, the probability it lands on 4 should be 0.65”	
23 (a)	50.5	M1 A1	for $\cos ABC = \frac{7}{11}$ (0.63...) oe for answer in the range 50.4 to 50.51	Must be a complete statement for cos, sin or tan with all three elements present. If an answer is in the range 50.4 to 50.51 is given in the working space then incorrectly rounded, award full marks.
(b)	Increase (supported)	C1	States increase with supporting reason eg “ $\frac{7}{10}$ is greater than $\frac{7}{11}$ ” “0.636 is less than 0.7” ...“cos increases as angle decreases” “decreasing the denominator increases the value of the fraction” “angle is now 45.6” (accept 45.5 – 45.6)	If figures are given they must be correct (truncated or rounded).

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
24 (a)	8	P1	for process to find sum of unknown probabilities, eg $1 - 0.45 - 0.25 (= 0.3)$ <b>OR</b> to find the total number of counters in the bag, eg $\frac{18}{0.45} (= 40)$ <b>OR</b> to find the number of yellow counters, eg $\frac{0.25}{0.45} \times 18 (= 10)$	Award mark for any two probabilities given that sum to 0.3 eg given in the table.  Award P2 for P(red) or P(white) (could be shown in table)  Equations could be given as written statements or working but must be fully equivalent.
		P1	for process to find $P(\text{red}) = 0.2$ oe <b>or</b> $P(\text{white}) = 0.1$ oe  <b>OR</b> for process to find the total number of red and white counters, eg “40” – 18 – “10” (=12)  <b>OR</b> for process to derive an equation in $x$ , eg $2x + x = 1 - 0.45 - 0.25$ or $2x + x = “0.3”$ or $x = 0.1$	
		P1	for a complete process to find the number of red counters, eg $\frac{2 \times 0.1}{0.45} \times 18$ or $\frac{2}{3} \times “12”$ or $0.2 \times “40”$ or $\frac{0.2}{0.025}$	
		A1	cao	
(b)	Explanation	C1	for explanation eg 0.5 multiplied by an odd number will never be a whole number, for half of a number to be an integer that number must be even, you can't have half a marble	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	3.8	M1	for a correct first step, eg $5 - x = 2(2x - 7)$ or $5 - x = 4x - 14$ or $\frac{5}{2} - \frac{x}{2} = 2x - 7$	Method must show LHS $\times 2$ and both terms on RHS $\times 2$ or $5 - x$ and both terms on RHS $\times 2$
		M1	(dep) for isolating terms in $x$ eg $4x + x = 14 + 5$ or $-\frac{x}{2} - 2x = -7 - \frac{5}{2}$	eg $-4x$ both sides with $-5$ both sides or $+x$ both sides with $+14$ both sides
		A1	oe	Accept $\frac{19}{5}$ , $3\frac{4}{5}$ oe but not $\frac{-19}{-5}$ oe

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
26	140	P1	for complete process to find sum of the interior angles of a pentagon eg $(5 - 2) \times 180$ or exterior $360 \div 5 = 72$ , interior $180 - 72 = 108$ , $108 \times 5$ <b>OR</b> for complete process to find sum of the exterior angles of the pentagon eg $(180 - x) + (180 - 2x) + (180 - 125) + (180 - 115) + (180 - 90)$	Must be a complete process that could lead to a figure of 540 if that process is evaluated incorrectly
		A1	for sum of interior angles is 540 <b>OR</b> for sum of exterior angles is 360	360 must be identified as the sum of the exterior angles
		P1	for start to process to find angle $ABC$ eg [angles in a pentagon] $- 115 - 125 - 90 (= 210)$ or $115 + 125 + 90 + x + 2x =$ [angles in a pentagon] <b>OR</b> $(180 - x) + (180 - 2x) + (180 - 125) + (180 - 115) + (180 - 90)$ $= 360$	Award provided [angles in a pentagon] is greater than 400 Algebraic route needs to show both sides of the equation. LHS of equation may be simplified
		P1	for process to find angle $ABC$ eg “210” $\div 3 (= 70)$ , “210” divided in the ratio 2 : 1 <b>or</b> for process to find angle $BCD$ eg $\frac{2}{3} \times$ “210” <b>or</b> for $3x =$ “210” or $-3x = -$ “210”	Award if 70 is given for either $ABC$ or $BCD$ on the diagram
		A1	cao	Award marks for 140 on the diagram with working and not contradicted by the answer line. Award 0 marks for 140 without working.



Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
27 (a)	9.6	M1	for a correct ratio, eg $\frac{12.6}{8.4}$ (= 1.5) <b>or</b> $\frac{8.4}{12.6}$ (= 0.66..) <b>or</b> $\frac{6.4}{8.4}$ (= 0.76..) <b>or</b> $\frac{8.4}{6.4}$ (= 1.31) oe	Decimal equivalents can be truncated or rounded to 2 dp Accept equivalent methods to use a sf eg $\frac{6.4}{2} + 6.4$ (indicative of 1.5)
(b)	10	A1	cao	
		M1	for $15 \div "1.5"$ <b>or</b> $15 \times "0.66.."$ or ft their ratio from part (a) oe	Award the method mark for any (equivalent) complete method shown.
		A1	cao	
28	$g = 2T^2 - 6$	M1	for $T^2 = \frac{g+6}{2}$ <b>or</b> $\sqrt{2} \times T = \sqrt{g+6}$	
		M1	(dep) for $T^2 \times 2 = g + 6$ <b>or</b> $(\sqrt{2} \times T)^2 = g + 6$ oe	Can only award this mark if the first M mark has been awarded.
		A1	for $g = 2T^2 - 6$ oe	

## Modifications to the mark scheme for Modified Large Print (MLP) papers.

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:

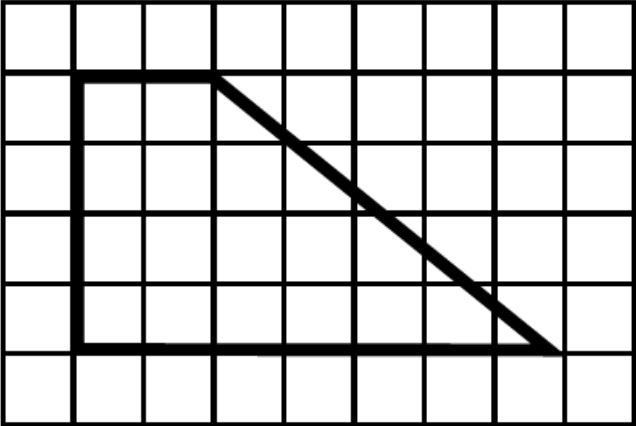
Angles:  $\pm 5^\circ$

Measurements of length:  $\pm 5$  mm

Paper: 1MA1/3F		
Question	Modification	Mark scheme notes
9	Last two columns have been removed from the table.	Standard mark scheme but ignore references to "34" since this bus no longer exists.
12	The height of the diagram has changed to 5.5 cm allow for use of specialist equipment.	<p>B1 for a correct measurement of either length or width,            eg. 11.5 (cm) or 5.5 (cm); allow measurements 11.0 to 12.0 and 5.0 to 6.0</p> <p>P1 for process to find actual dimensions, eg.  <math>[\text{length}] \times 200 (= 2300)</math> or <math>[\text{width}] \times 200 (= 1100)</math> –  <math>[\text{length}]</math> in the range 11.0 to 12.0; <math>[\text{width}]</math> in the range 5.0 to 6.0</p> <p>P1 (indep) for process to convert to metres,  <math>[\text{length in cm}] \div 100</math>            eg. "2300" <math>\div 100 (= 23)</math> or "1100" <math>\div 100 (= 11)</math></p> <p>P1 (indep) for complete process to find the perimeter,            eg. "23" <math>\times 2 +</math> "11" <math>\times 2 (= 68)</math></p> <p>A1 for an answer in the range 64 to 72</p>

Paper: 1MA1/3F		
Question	Modification	Mark scheme notes
13	Diagrams enlarged. Diagram labels moved above the diagrams. Wording added 'There are three spaces to fill.'	Standard mark scheme
14	List of numbers stacked in 4 rows. Horizontal line added to the bottom row of the stem and leaf diagram	Standard mark scheme
17	Diagram enlarged. Wording added 'AB = 3x cm, BC = 3x cm, Angle ABC is a right angle.'	Standard mark scheme
19	Diagram enlarged. Axes labels moved to the left of the horizontal axis and above the vertical axis. Crosses changed to solid dots. Right axis has been labelled.	Standard mark scheme

**Paper: 1MA1/3F**

Question	Modification	Mark scheme notes
21	<p>Shape changed but the area is still the same.                      Wording changed to ‘Look at the diagram for Question 21 in the Diagram Book.                      It shows a trapezium drawn on a grid of squares.                      Each square on the grid represents a 1 cm square.                      A triangle is going to be drawn that is equal in area to the trapezium.                      Write down the length of the base and the vertical height of a triangle that is equal in area to the trapezium.’                      Two answer lines have been provided.</p> <p style="text-align: center;"><b>Each square on the grid represents a 1 cm square.</b></p> 	<p>M1 for a method to find area of trapezium, eg. <math>\frac{1}{2}(2 + 7) \times 4 (=18)</math> or <math>(2 \times 4) + (0.5 \times 5 \times 4)</math> or <math>8 + 10 (=18)</math> or for two answers that would give a triangle of area ft their area of trapezium (if not 18) or for two answers that would give a triangle of area 36 or for a triangle that would give an area ft their area of trapezium                      A1 for two answers given that would give a triangle of area 18, eg. base = 6, height = 6 or base = 9, height = 4 oe                      Accept use of dimensions that are not whole numbers as long as the intention is clear</p>
22	Diagram enlarged. Wording added ‘It shows a probability tree diagram	Standard mark scheme
23	Diagram enlarged. Wording added ‘AB = 11cm CB = 7cm Angle ACB is a right angle. Angle ABC is marked.’	Standard mark scheme
24	Table has been turned to vertical format. Order of the table changed round so it reads: blue, yellow, red and white.	Standard mark scheme

Paper: 1MA1/3F		
Question	Modification	Mark scheme notes
26	Diagram enlarged. Angles moved outside of the angle arcs, with smaller arcs. Wording added 'Angle EAB = 125° Angle AED = 115° Angle EDC is a right angle.'	Standard mark scheme
27	Diagram enlarged. Wording added 'In triangle ABC AB = 8.4 cm, AC = 6.4 cm In triangle DEF DE = 12.6 cm FE = 15 cm.' Braille have added wording 'Angle A = angle D, Angle B = angle E Angle C = angle F.'	Standard mark scheme
28	Braille only: <i>g</i> changed to <i>m</i> .	Standard mark scheme with <i>g</i> changed to <i>m</i> .

