



Pearson
Edexcel

Mark Scheme (Results)

November 2018

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Non-Calculator) Paper 1F

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

November 2018

Publications Code 1MA1_1F_1810_MS

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

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

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	0.02, 0.152, 0.2, 0.37, 0.4	B1	for correct order	Accept reverse order
2	60	B1	cao	
3	5	B1	cao	
4	8000	B1	cao	
5	(a) 22	B1	cao	Allow alternative correct statements, eg $[7 \times (2 + 3)] = 35$
	(b) 8	B1	cao	
	(c) $7 \times (2 + 3) = 35$	B1	for correct placement of brackets	

Paper: 1MA1/1F					
Question	Answer	Mark	Mark scheme	Additional guidance	
8	(a) -2, -1	B1	cao	<p>Allow without label provided unambiguous; allow if the cross is nearer to (2, 3) than other points.</p> <p>Label not required; allow hand-drawn line. Allow any length provided intention is clear.</p>	
	(b) Point at (2, 3)	B1	cao		
	(c) Line drawn	B1	cao		
9	30	M1	$2 \times 9 + 3 \times 4$	<p>May be shown in stages but an intention to add 2×9 and 3×4 must be clear</p>	
		A1	cao		
10	3 and 29 or 13 and 19	M1	for two numbers with a sum of 32, only one of which is prime, eg 5, 27 or 1, 31	<p>Do not accept 1 as a prime number.</p>	
		A1	cao		
11	(a) $\frac{10}{16}$	B1	cao	<p>Accept any equivalent fraction</p>	
	(b) $\frac{11}{12}$	M1	for $\frac{10}{12}$		
		A1	<p>OR</p> <p>for using a suitable common denominator other than 12 with at least one of the two fractions correct, eg $\frac{2}{24} + \frac{20}{24}$</p> <p>for $\frac{11}{12}$ oe</p>		

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
12 (a)	10	B1	cao	
(b)	30	M1	for using the graph to take one correct reading	May be shown on graph
		A1	30 or ft from correct use of graph	
13	4 : 1 : 2	M1	for start to express the statements as a ratio eg 4 : 1, 1 : 4, 1 : 2 or 2 : 1 with clear and correct link to Azmol, Ryan, Kim	Allow any equivalent ratio, integers only May be seen as part of an incorrect answer.
		A1	OR as algebraic expressions, two of $4x$, x and $2x$ eg $4x : x$, $1x : 4x$, $1x : 2x$ or $2x : 1x$ with clear and correct link to Azmol, Ryan, Kim	May be seen as integer multiples of these algebraic expressions. Any letter may be used.
		(SCB1)	4 : 1 : 2 oe 3 integer numbers in correct ratio but no ratio notation, eg 4, 1, 2 or 20, 5, 10)	Accept 8 : 2 : 4 or equivalent ratios involving integers
14	shown	M1	for method to find angle ADC , eg $180 - 75 (= 105)$	Must be clear link to angle ADC , may be marked on diagram
		M1	for angle $BCD = 50$	
		M1	for method to find angle ABC , eg $360 - 100 - 50 - "105"$	Must be clear method/explanation shown. Angle marked on diagram is not sufficient.
		C1	(dep M3) for angles ADC , BCD and ABC correct and at least 2 appropriate reasons, eg vertically opposite angles are equal or vertically opposite angles are equal , angles on a straight line add to 180° , angles in a quadrilateral/kite add up to 360° ; angles at a point add up to 360°	Underlined words need to be shown; reasons need to be linked to their method

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
15 (a)	420	P1	starts process, eg $300 \div 5 (= 60)$ or $200 \div 2 (= 100)$ OR builds up ratio to at least 300 ml orange juice with one error	May be seen as “60” \times 7 “60” must come from correct method
		P1	complete process, eg “60” \times 5 + “60” \times 2 or 300 : 120	
		A1	cao	
(b)	explanation	C1	explains that it will have no effect with reason, eg because he only needs 120 ml of lemonade because he has no more orange juice to use	
16	No and explanation	C1	‘No’ and explanation with reference to multiplication or division eg No he’s incorrect as you would multiply the sides by a number rather than add	
17 (a)	32, 48, 24, 8, 37, 11	C1	starts to interpret information, eg 48 or 8 in correct place	Incorrect notation with “37” and “61” can earn the method mark but not the accuracy mark. Accept any equivalent fraction, decimal form 0.60(65...) or 0.61 or percentage form 60(.65...) % or 60% or 61%
		C1	for $80 - 48 (= 32)$ and “32” $- 8 (= 24)$	
		C1	completes frequency tree correctly SC: award C2 if all correct frequencies are shown as fractions of 80.	
(b)	$\frac{37}{61}$	M1	ft for $\frac{a}{"61"}$ with $a < "61"$ or $\frac{"37"}{b}$ with $b > "37"$	
		A1	ft from diagram in (a)	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	Jan's store (supported)	P1	process to reduce £5 by 20% (= £4) or increase 400 by 30% (= 520)	May work in pence throughout Accept any correct appropriate percentage process May use £/g or any other comparable values Do not award without correct comparable values and full working.
		P1	process to reduce £5 by 20% (= £4) and increase 400 by 30% (= 520)	
		P1	(dep P2) process to find comparable values, eg $400 \div "4"$ and $"520" \div 5$	
		C1	'Jan's store' fully supported by correct comparative values, eg 100 (g/£) and 104 (g/£)	
19	Shape drawn	B2	for shape with vertices at (4, -3), (5, -4), (5, -5), (4, -5)	Shape does not have to be shaded. Allow some tolerance on vertices as long as they are nearest to the desired points. This is shown by the orientation of the shape.
		(B1	for rotation of 180° about wrong centre)	
20	9	M1	for a correct first step, using the laws of indices to simplify eg 3^2 or $3^{7+ -2}$ or 3^{7-3} or 3^{-2-3} OR for using exact values, eg $2187 \times \frac{1}{9}$ (= 243) or $2187 \div 27$ (= 81) or $\frac{1}{27 \times 9}$ (= $\frac{1}{243}$)	
		A1	cao	
21 (a)	6 or -6	M1	for $12^2 + 2 \times -3 \times 18$ (= 36)	Terms may be partially evaluated. Only one value is required for full marks
		A1	for 6 or -6, accept ± 6	
(b)	$s = \frac{v^2 - u^2}{2a}$	M1	for subtracting u^2 from both sides or dividing all terms by $2a$ as the first step	Must see this step carried out, not just the intention shown
		A1	$s = \frac{v^2 - u^2}{2a}$ oe	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	No (supported)	P1 P1 P1 P1 A1	<p>for start to process, eg $2100 \times \frac{40}{100} (= 840)$ or $100 - 40 (= 60)$</p> <p>for process to find the 7 salesmen's share of bonus, eg $2100 - "840" (= 1260)$ or $2100 \times \frac{60}{100} (= 1260)$</p> <p>for process to find bonus amount each salesman gets eg $"1260" \div 7 (= 180)$ OR process to find the total bonus for all salesmen if shared equally, eg $\frac{2100}{10} \times 7 (= 1470)$</p> <p>for process to compare what a single salesman gets under each scheme, eg $"180" \times \frac{25}{100} (= 45)$ and $\frac{2100}{10} - "180" (= 30)$ or $"180" \times \frac{25}{100} (= 45)$ and $"180" + "45" (= 225)$ oe and $\frac{2100}{10} (= 210)$ or $(\frac{2100}{10} - "180") \div "180" \times 100 (= 16.6\dots)$</p> <p>OR process to compare what all salesmen gets under each scheme, eg $"1260" \times \frac{25}{100} (= 315)$ and $"1470" - "1260" (= 210)$ or $"1260" \times \frac{25}{100} (= 315)$ and $"1260" + "315" (= 1575)$ oe and $"1470"$ or $(\frac{2100}{10} - "1260") \div "1260" \times 100 (= 16.6\dots)$</p> <p>'No' supported by correct figures, eg 45 and 30, 225 and 210, 315 and 210 or 1575 and 1470 or 16.(6...)(% and 25%)</p>	<p>May compare bonus shares of a single salesman or total bonus share for all 7 salesmen.</p> <p>Do not award unless correct figures have been shown to support a statement made that the salesman was not correct.</p>

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
23	(a) 200	M1	for $120 \times 5 \div 3$ oe	Any statement referring to the same amount of water flowing from each tap is acceptable.
	(b) statement	A1 C1	cao Statement that each tap fills at the same rate or that the rate does not change over time Examples Acceptable responses: Taps are running at the same speed They (clearly referring to taps) all fill the pool with the same volume of water The amount of water is the same in the same time (again referring to taps) Each tap is doing a fifth of the filling That all taps take equal time to fill the pool All taps produce the same amount of water That the water flow stays at the same rate over the whole time. Non acceptable responses It will take more time because there are less taps The less taps used the longer it takes to fill the pool That 1 tap can take up to 24 mins each 3 taps will take longer to fill the pool	
24	(a) 16 to 20	P1	for using time = $\frac{\text{distance}}{\text{speed}}$, eg $\frac{1}{200}$ or $\frac{1}{213}$ or for 1 hour = 60×60 (= 3600) seconds	Calculation could be done in stages.
	(b) decision with reason	P1 A1 C1	complete process, eg $\frac{1}{200} \times 60 \times 60$ oe or $\frac{1}{213} \times 60 \times 60$ for answer in range 16 to 20 (dep on correct use of time = $\frac{\text{distance}}{\text{speed}}$) for reason related to their response to part(a), eg overestimate as speed rounded down	

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	$x = 4.5, y = -1.5$	M1 M1 A1	correct process to eliminate one variable (condone one arithmetic error) (dep) for substituting found value in one of the equations OR correct process after starting again (condone one arithmetic error) for $x = 4.5, y = -1.5$ oe	Fractions do not need to be in simplest form
26	shown	C1 C1 C1 C1	for method to find area of semicircle, eg $\pi \times 10^2 \div 2 (= 50\pi)$ for method to find area of quarter circle, for $\pi \times 20^2 \div 4 (= 100\pi)$ for a complete method to find area shaded and area of square, eg $\pi \times 20^2 \div 4 - \pi \times 10^2 \div 2$ and 20×20 fully correct working leading to $\frac{\pi}{8}$	Can award first 3 marks if a value for π is used Working out to find the area of the shaded region must be shown
27	(a) $\frac{7}{10}, \frac{4}{9}, \frac{5}{9}, \frac{4}{9}$ (b) $\frac{15}{90}$	B2 (B1 M1 A1	for all probabilities correct (oe) for 2 or 3 correct) for $\frac{3}{10} \times \frac{5}{9}$ oe $\frac{15}{90}$ oe	Accept any equivalent fraction, decimal form 0.16(6...) or 0.17 or percentage form 16(.6...)% or 17%

Paper: 1MA1/1F				
Question	Answer	Mark	Mark scheme	Additional guidance
28	24	P1 P1 A1	starts process, eg $x + 11x = 180$ or $180 \div 12 (= 15)$ or interior angle + exterior angle = 180 oe complete process to find number of sides, eg $360 \div (180 \div 12)$ cao	

Modifications to the mark scheme for Modified Large Print (MLP) papers. Paper 1F.

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: ± 5 mm

PAPER: 1MA1_1F		
Question	Modification	Mark scheme notes
1	Wording 'five' added	Standard mark scheme
3	Wording 'seven' added	Standard mark scheme
7	Diagram enlarged. Key moved above and to the left of the diagram. Squares divided into four sections. Wording added 'There is one row to complete.'	Standard mark scheme
8	Diagram enlarged. Wording added 'It shows a point A, marked on a grid.' Cross changed to solid dot. In part (b) Wording 'with a cross (x)' removed.	Standard mark scheme
11	Wording 'some' removed and changed to 'five'	Standard mark scheme

PAPER: 1MA1_1F

Question	Modification	Mark scheme notes
12	Diagram enlarged. Right axis labelled. Graph line made thicker. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme but additional tolerance is needed in taking readings from the graph; allow if the intention is clear.
14	Diagram enlarged. Wording added 'Three angles are marked on the diagram: 50°, 75°, 100°.' Angles moved outside of angle arcs and angle arcs made smaller.	Standard mark scheme
15	Frame around information removed	Standard mark scheme
16	Diagrams enlarged. Diagram labels moved above the shapes and to the left-hand side of the shapes. Braille only – will label rectangles A and B and give the shape measurements.	Standard mark scheme
17	Wording added 'It shows an incomplete frequency tree.' Part (a): Wording added 'There are six spaces to fill.' Diagram enlarged. Braille only – will label answer spaces as shown below: (ii) (i) (iv) 80 (v) (ii) (vi)	Standard mark scheme
18	3D boxes removed. Wording 'Box' added after 'Food Mart'. Wording 'Box' added after 'Jan's Store'.	Standard mark scheme

PAPER: 1MA1_1F

Question	Modification	Mark scheme notes
19	Wording added 'It shows shape A on a grid. A cut out shape is available if you wish to use it.' Diagram enlarged. Wording 'A' deleted from inside the shape. Wording 'shape A' added above the shape. Shading has been changed to dotted shading.	Standard mark scheme
26	Diagram enlarged. Shading has been changed to dotted shading. DC labelled 20 cm.	Standard mark scheme
27	Wording added 'It shows an incomplete probability tree diagram.' Part (a): Diagram enlarged. Braille only – will label answer spaces as shown below. Wording added 'There are four spaces to fill.' $\frac{5}{9}$ $\frac{3}{10}$ (ii) (ii) (i) (iv)	Standard mark scheme



Pearson
Edexcel

Mark Scheme (Results)

November 2018

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

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
1	40 or tens	B1	cao	Accept trailing zeros, eg 40.0 Accept forty
2	odd square	B1	stating an odd square number eg 1, 9, 25, 49, 81, etc.	
3 (a)	4.56	B1	cao	Accept trailing zeros, eg 4.560
(b)	7300	B1	cao	Accept trailing zeros, eg 7300.0
4	4	B1	cao	
5	$\frac{31}{100}$	B1	cao	
6	$\frac{5}{7}, \frac{11}{15}, \frac{3}{4}, \frac{19}{25}$	M1 A1	conversion into decimals or percentages or other equivalent form, at least two conversions correct, or any three fractions in correct order cao	0.71(...), 0.73(...), 0.75, 0.76 Accept list in reverse order for this mark Accept expressed in equivalent decimals or percentages or any other appropriate form
7 (a)	$4m$	B1	cao	
(b)	$8np$	B1	cao	
8	263.2	M1 A1	for using the scale eg 14×18.8 or 14×18 or for the digits 2632 or an answer of 263 cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
9 (a)	Explanation	C2	<p>full explanation eg explains that both 19 and 22 are terms in the sequence or solves $3n + 4 = 21$ to find $n = 17/3$ oe</p> <p>Acceptable examples 19 is in the sequence and $19 + 3$ is more than 21 The 5th term is 19 and the 6th term is 22 7, 10, 13, 16, 19, 22 17 is not in the 3 times table Because 21 is in the 3 times table and the sequence is plus 4</p> <p>(C1 for substituting to find a term in the sequence or forming an equation eg $3n + 4 = 21$ or for a partial explanation or an explanation with some ambiguity)</p> <p>Acceptable examples The closest number is 22 $3 \times 6 = 18$, $18 + 4$ is higher than 21 19 is in the sequence so 21 can't be in the sequence. Starting at 7 and adding 3 each time won't lead to 21 It's the 3 times table plus 4 21 is in the 3 times table</p> <p>Not acceptable examples Adding 4 each time won't lead to 21 It doesn't end up at 21, it goes past it</p>	7, 10, 13, 16, 19, 22, ...

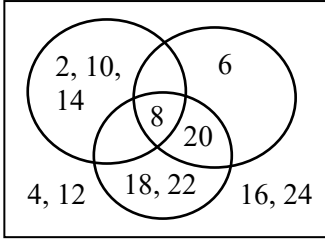
Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
9 (b)	terms given explanation	B1 C1	states two terms eg 7,11 or 8,16 or 5, 7 explanation eg add one more each time, doubling Acceptable examples Add 3 and add 4 The difference goes up by one each time It doubles +1, +2, +1, +2 or indicates +1, +2 repeats itself Not acceptable examples It goes up by 1 each time It doubles so $2n$ +1, +2, +3, +4 so $2n + 1$	May be indicated on the sequence with no contradictory statement made
10 (a) (b)	38 6	B1 M1 A1	cao starts process to find input using inverse operations eg $28 + 2$ or sight of $+2 \div 5$ or by forming an equation eg $x \times 5 - 2 = 28$ cao	$+2 \div 5$ could be seen in a flow diagram
11	4	M1 M1 A1	for $\frac{30}{100} \times 80 (=24)$ oe or for 104 (dep) for $28 - "24"$ or $108 - 104$ for 4 or -4	Numbers in subtraction may be reversed

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
12	$\frac{29}{49}$	P1 A1	for $\frac{29}{a}$ where $a > 29$ or $\frac{b}{49}$ where $b < 49$ or $1 - \frac{20}{49}$ or $\frac{49-20}{c}$ where $c > 49 - 20$ OR for 29 and 49 with incorrect notation eg 29 : 49 oe	Acceptable equivalents are any equivalent fraction to $\frac{29}{49}$, decimal 0.59 (...) or 59 (...)%
13 (a)	36	P1 A1	square root of 81 eg $\sqrt{81}$ or 9 or 9×4 cao	9 could be seen on the diagram
(b)	12	M1 M1 A1	finding area of triangle eg $\frac{1}{2}(16 \times 9)$ (=72) equating with area of parallelogram eg [area of triangle] $\times 5 = 30 \times h$ or $(h =)$ [area of triangle] $\times 5 \div 30$ or $(h =)$ [area of triangle] $\div 30$ or sight of 2.4 cao	[area of triangle] must be 72 or 144 or come from $\frac{1}{2}(16 \times 9)$ or 16×9

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
14 (a)	No (supported)	C1	<p>No and explanation eg “it is $\frac{1}{6}$” or “each number is the same probability”</p> <p>Acceptable examples No, they are both $\frac{1}{6}$ (accept 1 in 6 or 1 : 6 etc) No, they are both the same No, an equal chance No, it’s a fair dice No, there’s only one of each number</p> <p>Not acceptable examples No, it’s an even chance No, it’s 50 – 50 No, 1 : 6</p>	
(b)	No (supported)	C1	<p>No and explanation eg “it is out of 36” or “it is $\frac{1}{6}$ times $\frac{1}{6}$”</p> <p>Acceptable examples No, the probability is $\frac{1}{36}$ No, it’s out of 36 No, he should times not add</p> <p>Not acceptable examples No, it’s $\frac{1}{6} \times \frac{1}{6}$, the probability is $\frac{1}{12}$ No, he’s more likely to get it once only No, there’s only one 6 on a dice No, you will have a $\frac{2}{12}$ chance</p>	
(c)	1H, 2H, 3H, 4H, 5H, 6H, 1T, 2T, 3T, 4T, 5T, 6T	B2 (B1)	<p>for all 12 outcomes with no extras or repeats</p> <p>for at least 6 correct outcomes, ignoring extras and repeats)</p>	<p>Pairs must be unambiguous Accept words and abbreviations</p>

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
15	2.5	M1 M1 A1	<p>for $(R =) \frac{100I}{PT}$ or $600 \times 5 (= 3000)$ or $75 \times 100 (= 7500)$ or $75 \div 5 (= 15)$ or $75 \div 600 (= 0.125)$</p> <p>for $\frac{75 \times 100}{600 \times 5}$ oe</p> <p>OR $\frac{"15"}{600} (= 0.025)$ or $"0.125" \div 5 (= 0.025)$ or 1.025</p> <p>cao</p>	<p>Calculations may be done in stages.</p> <p>May work in decimals or in percentages</p>
16	Reflection in x -axis	B1 B1	<p>for reflection</p> <p>for x-axis or $y = 0$</p>	Award no marks if more than one transformation is given
17	2 bags of stone	P2 C1	<p>for a complete process to work out how many bags of each material is required eg $180 \div 25 (= 7.2 \text{ or } 8)$, $375 \div 22.5 (= 16.6.. \text{ or } 17)$, $1080 \div 50 (= 21.6 \text{ or } 22)$</p> <p>or a complete process to work out the total weight of each element that he has eg $25 \times 10 (= 250)$, $20 \times 22.5 (= 450)$, $50 \times 20 (= 1000)$</p> <p>(P1 for a correct start to the process, eg for at least one correct calculation</p> <p>C1 correct conclusion eg 2 bags of stone, with no incorrect working</p>	The correct figures do not need to be seen to award the process marks

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
18 (a)	explanation	C1	<p>explanation eg should be 1.03, this is 30% (not 3%)</p> <p>Acceptable examples Because 1.3 is 130% He is increasing it by 30% 1.3 means 1.30, not 1.03 He needs to put a 0 in front of the 3 1.3 is the wrong decimal He should multiply by 0.03 3% is 0.03, (not 1.3) His answer should be 154.5 He is meant to increase it by 4.5, not by 45</p> <p>Not acceptable examples Because he is increasing by 130%, not 3% He needs to find 1% and then times it by 3</p>	
(b)	$(150 \times) 0.97 = 145.5$	B1	for 0.97 (or $\frac{97}{100}$ or 97%) and 145.5	
19 (a)	8	M1	for a correct first step eg $3x - 12 = 12$ or $3(x - 4) \div 3 = 12 \div 3$	
		A1	cao	
(b)	$3b(3 - b)$	M1	for $3(3b - b^2)$ or $b(9 - 3b)$ or $3b$ (two term linear expression)	
		A1	cao	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
20	(a)	Venn diagram	<p>C4 fully correct Venn diagram</p> <p>(C3 7 of the 8 regions correct or for a diagram with only one number incorrectly placed)</p> <p>(C2 5 or 6 of the 8 regions correct)</p> <p>(C1 3 or 4 of the 8 regions correct)</p>	
	(b)	$\frac{1}{12}$	<p>M1 ft for identification of 1 or 12 eg from the diagram</p> <p>A1 ft oe</p>	<p>Need not be written as a fraction or probability at this stage. eg could be a ratio 1:12</p> <p>Acceptable equivalents are (eg, could fit) any fraction equivalent to $\frac{1}{12}$, 0.08(33..) or 8(.33..)%</p>
21	statements	<p>C1</p> <p>C1</p>	<p>for lobf incorrect</p> <p>Acceptable examples lobf lobf does not suit all points/not a lobf lobf wrong since hits <i>x</i> axis/is inaccurate/should be amongst the crosses lobf goes through the origin/through one point</p> <p>Not acceptable examples no correlation/there is no title</p> <p>for height scale not linear</p> <p>Acceptable examples 150 missing Height not linear / Height numbers going up wrong</p> <p>Not acceptable examples 150 graph does not start at 140/graph does not start at 0 height should start at 170</p>	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
22	60	M1	use of parallel lines to find an angle eg $ABE=70$ or $EBG=75$ or $EBC = 110$ or shows parts of x as 35 or 25	Parts of x should be identified on the diagram by the insertion of a dividing line through angle x (need not be identified or drawn parallel). Correct method can be implied from angles on the diagram if no ambiguity or contradiction. Underlined words need to be shown; reasons need to be linked to their method; any reasons not linked do not credit. There should be no incorrect reasons given.
		M1	for a complete method to find angle x ; could be in working or on the diagram	
		A1	for $x = 60$	
		C1	(dep on M1) for one reason linked to parallel lines and one other reason, supported by working taken from: <u>alternate</u> angles are equal, <u>allied</u> angles / <u>co-interior</u> angles add up to 180, <u>angles</u> on a straight <u>line</u> add up to 180, <u>angles</u> in a <u>triangle</u> add up to 180°	

Paper: 1MA1/2F				
Question	Answer	Mark	Mark scheme	Additional guidance
23	(a)	P1	shows how to work interest out for one year eg $2000 \times 0.025 (= 50)$ or $1600 \times 0.035 (= 56)$ or 150 or 168 or $2000 \times 1.025 (= 2050)$ or $1600 \times 1.035 (= 1656)$	Throughout accept figures ± 1 pence which do not need to be presented in money notation (to 2dp) or with monetary symbols. Award mark for a correct process shown, for which these figures can be taken as implying the process. As above, award mark for both correct processes shown for both accounts, which these figures can be taken as implying the process. Accept an answer of "shares".
			shows compound interest calculation for one account eg $2050 \rightarrow 51.25$ or $2101.25 \rightarrow 52.53$ or $1656 \rightarrow 57.96$ or $1713.96 \rightarrow 59.99$ eg $2000 \times 1.025^3 (= 2153.78)$ or $1600 \times 1.035^3 (= 1773.95)$	
			shows complete compound interest calculation for both accounts eg $2000 \times 1.025^3 (= 2153.78)$ and $1600 \times 1.035^3 (= 1773.95)$ OR one interest stated correctly eg 153.78 or 173.95	
		C1 Ben (shares) supported by 153.78 and 173.95		
	(b)	conclusion	C1	conclusion (ft) eg no change, shares now 182.5... Acceptable examples no since shares/Ben now 182.5 Still Ben since $182.5 > \text{Ali}$ No; he only gets 8.57 more No; he gets 68.56 instead of 59.98 (3 rd yr) No; Ben already gets more interest, he would just get even more Not acceptable examples no shares now 182.5 Still Ben since less than Ali $182.5 > 153.78$ no; he needs 20.17 more

Paper: 1MA1/2F					
Question	Answer	Mark	Mark scheme	Additional guidance	
24	No (supported)	P1 P1 P1 P1 C1	<p>calculates area of trapezium eg $\frac{1}{2} \times 7 \times (10+16)$ (= 91)</p> <p>for division by coverage eg $\div 2$ or [area of trapezium] $\div 2$ (= 45.5) or process to find coverage per tin eg 5×2 (= 10)</p> <p>for division to find the number of tins eg $\div 5$ or "45.5" $\div 5$ (= 9.1) or [area of trapezium] \div "10" (= 9.1)</p> <p>(dep on at least P2) for a process to multiply a whole number of tins (rounded up) by 16.99</p> <p>for 'No' supported by correct figures eg 169.9 or 90 and 91</p>	<p>for process to find number of tins bought eg $160 \div 16.99 = 9$ tins</p> <p>for using whole no. of tins to find total litres eg 9×5 (= 45)</p> <p>(dep on at least P2) for a process to find the total coverage eg "45" $\times 2$ (= 90)</p>	<p>[area of trapezium] needs to be clearly stated if the process of finding the area is not clear</p> <p>There must be a conclusion ("No" or equivalent wording) including the figure 169.9 and working showing processes followed.</p>
25	7	P1 P1 A1	<p>process to use gradient eg $y = 3x + c$ or $c = -6$ or $\frac{15-9}{d-5}$</p> <p>or $(15 - 9) \div 3$ or (6, 12)</p> <p>(dep) full process to rearrange equation formed to isolate d eg rearrangement of $15 = 3d - 6$ or $3 = \frac{15-9}{d-5}$ or for $5 + \frac{15-9}{3}$</p> <p>cao</p>	<p>Condone use of a letter other than d, for d</p> <p>Must show processes to get as far as $d =$</p> <p>Award P2 for an answer of (7, 15)</p>	

Paper: 1MA1/2F						
Question	Answer	Mark	Mark scheme	Additional guidance		
26 (a)	$10x^2 - 11x - 6$	M1	for 3 out of no more than 4 terms correct with correct signs or 4 correct terms ignoring signs	$10x^2 - 15x + 4x - 6$ NB: $10x^2 - 11x$ and $-11x - 6$ are indicative of 3 correct terms.		
		A1	cao			
(b)	$(x + 1)(x + 3)$	M1	for $(x \pm 1)(x \pm 3)$ or for $(x + a)(x + b)$ where either $ab = 3$ or $a + b = 4$			
		A1	cao			
27 (a)	7.547×10^{-5}	B1	cao	Answer could be given as an ordinary number.		
		(b)	34200		B1	cao
		(c)	3.082×10^{15}		M1	for $\frac{23000 \times 6700}{0.00000005}$ OR for one calculation eg 1.541×10^8 or 154 100 000 or 4.6×10^{11} or 1.34×10^{11}
A1	for 3.082×10^{15} oe					

Modifications to the mark scheme for Modified Large Print (MLP) papers. Paper 2F.

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: ± 5 mm

PAPER: 1MA1_2F		
Question	Modification	Mark scheme notes
10	Wording changed from 'Here is' to 'It shows'.	Standard mark scheme
13	(a) Wording changed from 'A square has' to 'It shows a square with'. Diagrams enlarged.	Standard mark scheme
13	(b) Top of the parallelogram labelled 30 cm. Braille only – triangle labelled ABC and parallelogram DEFG, added information about the shapes	Standard mark scheme
16	Diagram enlarged. Shading changed to dotted shading. Wording deleted from inside the shapes. Shapes labelled 'shape A' and 'shape B', above and below respectively. Wording added 'It shows shape A and shape B on a grid.' K and V only – shape provided.	Standard mark scheme
17	Table turned to vertical format.	Standard mark scheme
19	(b) Braille and MLP – b changed to y .	Standard mark scheme but b changed to y .
20	Diagram enlarged. Wording added 'It shows a Venn diagram.' Circles labelled 'set A', 'set B' and 'set C'. Braille only – sticky labels provided.	Standard mark scheme
21	Diagram enlarged. Crosses changed to solid dots. Axes labels moved to the right of the horizontal axis and above the vertical axis. Wording changed from 'Here is his answer.' to 'His answer is shown in the Diagram Book.'	Standard mark scheme

PAPER: 1MA1_2F

Question		Modification	Mark scheme notes
22		Diagram enlarged. Arrows moved further to the right and made bigger. Angles moved outside of the angle arcs and angle arcs made smaller. Wording added 'Angle CBG = 35°, Angle BED = 110°, Angle GEF = 25°, Angle BGE is marked x .' Wording changed from 'Work out the size of angle x .' to 'Work out the size of the angle marked x .'	Standard mark scheme
24		Diagram enlarged and a model provided for all candidates. Wording added 'The diagrams show a floor in the shape of a trapezium and a tin of paint. The model represents the tin of paint.' Braille only – parallelogram labelled ABCD, added information about the shape.	Standard mark scheme
26	(a)	MLP only – x changed to y .	Standard mark scheme with x changed to y
26	(b)	MLP only – x changed to y .	Standard mark scheme with x changed to y



Pearson
Edexcel

Mark Scheme (Results)

November 2018

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

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
1 (i)	43.7	B1	cao	Accept any other equivalent fraction to $\frac{5}{7}$
(ii)	$\frac{5}{7}$	B1	$\frac{5}{7}$ oe	
2	$\frac{3}{100}$	B1	cao	
3	1.2	B1	oe	Accept $\frac{12}{10}$ or $\frac{6}{5}$
4	90	B1	cao	
5 (a)	Cuboid	B1		
(b)	12	B1	cao	
6 (a)	Cross at $\frac{1}{2}$	B1	cross at $\frac{1}{2}$	Accept any other marks near to $\frac{1}{2}$ if the intention is clear; do not accept if any other marks are shown. Acceptable equivalents are equivalent fractions to $\frac{2}{6}$ eg $\frac{1}{3}$ decimal 0.33(...) or 33(..)%
(b)	$\frac{2}{6}$	B1	$\frac{2}{6}$ oe	
7	1.94 m or 194 cm	M1 A1	for 188 or 0.06 or 194 or 1.94 1.94 m or 194 cm	Do not accept numerical answers without the correct unit shown.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
8	Yes with correct figures	P1 P1 P1 C1	begins to work with proportion eg $20 \div 2 (=10)$ or $20 \div 5 (=4)$ or $2.38 \div 2(=1.19)$ or $5.60 \div 5 (=1.12)$ full process to find the cost of 20 pens or 20 folders eg. $20 \div 2 \times 2.38 (=23.8)$ or $20 \div 5 \times 5.60 (=22.4)$ or $2.38 \div 2 \times 20 (=23.8)$ or $5.60 \div 5 \times 20 (=22.4)$ full process to find total price or amount remaining eg “23.8” + “22.4” (=46.2) or $50 - “23.8” - “22.4” (=3.8)$ Yes with correct figures eg 46.2 or 3.8 (left)	Throughout monetary units not required; trailing zeros not needed. Can work in pence throughout ‘Yes’ might be implied from working eg $46.2 < 50$ or a statement that 3.8 is left, but 46.2 alone must also show an answer such as ‘Yes’ (may be written elsewhere). Working leading to 46.2 must be shown for this mark.
9	(a) Trapezium	B1	cao	
	(b) C and D	B1	cao	Accept in either order.
10	Reflection drawn	C1	for accurate reflection drawn	Can be hand drawn. Need not be shaded.
11	40	P1 P1 A1	for $100 - 30 (=70)$ or $1 - 0.3 (=0.7)$ or $1 - \frac{3}{10} (= \frac{7}{10})$ or $28 \div 7 \times 3 (=12)$ for a complete process eg $28 \div (“70” \div 10) \times 10$ oe or $28 + “12”$ cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
12	Correct pie chart	M1	for method to find at least one angle eg P: $360 \div 60 \times 24 (=144)$ or C: $360 \div 60 \times 16 (=96)$ or M: $360 \div 60 \times 20 (=120)$	Use the overlay Working may be seen in or by the table
		A1	for all 3 angles correctly calculated OR at least one accurately drawn angle	If three equal sectors of 120° with no working award 0 marks
		A1	fully a correct labelled pie chart	Labels as “vegetables” from table not just angle size. Accept P, C, M
13	50	P1	for $45 \times 1.2 (= 54)$ or $34 \times 1.5 (=51)$	
		P1	for $150 - “54” - “51” (= 45)$	
		P1	for “45” $\div 0.9 (=50)$	
		A1	cao	
14	(a) 0.3	B1	for 0.3 oe	Acceptable equivalents are 3/10 or 30% Answer on answer line takes precedence
	(b) 4	B1	4 or ft their (a)	Do not accept a statement of probability (eg 0.1)
	(c) 12	M1	for 0.2×60 oe	Do not accept the use of any other probability
		A1	cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
15	6	P1 P1 A1	for listing the multiples of 3 and 5 to at least the number 15 or $3 \times 5 (= 15)$ for considering multiples of 15, eg 4 multiples of 15 identified or $100 \div 15 (=6.6..)$ or an answer of 7 cao	3, 6, 9, 12, 15 and 5, 10, 15 If in a list of multiples of 3 and 5, multiples of 15 must be clearly identified Sight of $6.6(\dots)$ or $6\frac{2}{3}$ oe or an answer of 7 gets 2 marks.
16	30:1	M1 A1	for stating $450 : 15$ oe or $450 \div 15 (=30)$ oe or $1 : 30$ cao	$90 : 3$ Ignore units throughout.
17 (a)	Full working seen	M1 M1 C1	for an initial step with the expressions eg doubling $2x + 1$ or $x + 2$ or halving $4x$ or for identifying CD as $x + 2$ or for identifying DE as $2x + 1$ for an expression for the total perimeter, eg $4x + 2 \times (2x + 1) + 2 \times (x + 2)$ for full simplification and equating to 18	May be seen in working or on diagram
(b)	1.2	M1 A1	for isolating terms in x can ft an equation stated in (a) provided in form $ax + b = c$ for 1.2 oe	$10x = 18 - 6$ Accept $\frac{12}{10}$ or $\frac{6}{5}$

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
18	1204	P2 (P1 P1 A1)	for a full process to find 120% of 14200 eg, $1.2 \times 14200 (=17040)$ or $(0.2 \times 14200) + 14200 (=17040)$ for process to find 20% of 14200 eg, $0.2 \times 14200 (=2840)$ oe) for [cost] – 5000 cao SCB1 for answer of 920 if P0 scored	[cost] must be greater than 14200
19 (a)	Inequality shown	B2 (B1)	for fully correct solution with all three aspects with no ambiguity Aspect 1: circle at 4 Aspect 2: circle not shaded Aspect 3: arrow pointing left or line extending beyond –5, starting from their circle for any two aspects)	Circling the number 4 alone scores B0 Aspect 1 and Aspect 2 must relate to the same circle. Can work with an equation for both M marks Award 2 marks for an answer of $x \geq 6$ where \geq is an = or any incorrect inequality symbol, or for an answer shown as just 6.
(b)	4,5,6,7	B2 (B1)	for all four numbers in any order for 2 or 3 correct values with no errors or 4 correct values with one extra)	
(c)	$x \geq 6$	M1 M1 A1)	for a correct intention to subtract 5 from both sides or a correct intention to subtract x from both sides for a full method to solve the inequality or showing a critical value of 6 cao	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
20 (a)	7360	B1	cao	Answer must be given to at least 4 decimal places rounded or truncated Accept a clear indication of the decimal point. Check first four decimal places only
(b)	0.1077981356	B2 (B1	for 0.1077(981...) for 5.74(45626...) or 53.29 or 0.11 or 0.107 or 0.108)	
21	260 to 260.5	M1 M1 A1	for $883 - 245 (=638)$ or $883 \div 245 (=3.60..)$ or $883 \div 245 \times 100 (=360(.408..))$ oe for a complete method to find the percentage increase eg " $638 \div 245 \times 100 (=260(.408..))$ " or $883 \div 245 \times 100 - 100 (=260(.408..))$ oe Accept answers in the range 260 to 260.5	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
22 (a)	2, -4, 2, 8	B2 (B1)	all 4 values correct for 2 or 3 correct values)	
(b)	Graph	M1 A1	(dep B1) for at least 5 points plotted correctly ft from part a for a fully correct curve drawn	Accept freehand curves drawn that are not line segments; there must be some attempt to draw the minimum point below $y = -4$.
(c)	-2.6 or 1.6	B1	for 1 correct value, ft a non linear graph	Award for -2.6 or 1.6 or both values but do not award the mark if a correct value is given with an incorrect value. Accept 1.56 or -2.56 Note for ft to be applied the graph may be joined by line segments.

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
23	(a)	5	M1 “2” \div 40 \times 100	“2” comes from their reading of the height of the 20 to 24 column May be seen on chart Evidence of two different calculations that should lead to 380 are required for this mark
		A1 cao		
	(b)	9.5 shown	M1 for frequencies of 11, 8, 13, 6 and 2 (allow one error) or for midpoints 2, 7, 12, 17 and 22	
			M1 for finding at least 4 products fx consistently within interval (including end points)	
			M1 for $\Sigma“fx” \div (“11” + “8” + “13” + “6” + “2”)$ or $(11 \times 2 + 8 \times 7 + 13 \times 12 + 6 \times 17 + 2 \times 22) \div 40$ OR $\Sigma“fx” (=380)$ and $9.5 \times (“11” + “8” + “13” + “6” + “2”)$ $(=380)$	
C1 for correct figures showing the answer or accurate figures to compare from correct working eg 380 from two calculations				

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
24 (a)	2 mins 48 secs	P1	for an appropriate first step eg $700 \div 475 (=1.47..)$ or $475 \div [\text{time}] (= 4.16.. \text{ m/s})$ or $[\text{time}] \div 475 (= 0.24 \text{ s/m})$	[time] what candidate indicates as time of first race Units are not needed and can be ignored if given
		P1	for a complete process to find the required time eg $700 \div 475 \times [\text{time}] (=168)$ or $700 \div (475 \div [\text{time}]) (=168)$ or $[\text{time}] \div 475 \times 700 (=168)$	Allow calculation in stages and appropriate rounding.
		A1	cao	
(b)	Statement	C1	eg takes less time Acceptable examples Quicker time Faster time Reduces my answer to part (a) Not acceptable examples It is an underestimate The amount of time could/may increase Laura goes faster	

Paper: 1MA1/3F				
Question	Answer	Mark	Mark scheme	Additional guidance
25	17.3	P1	for full process to find either angle eg $(180 - 90) \div (2+3) \times 2$ or for 36 or 54 seen as an angle	May be seen on diagram Condone correct values if incorrectly placed. This must be shown as an equation with all four elements (eg cos, [A], 14, AB) present. [A] could be 36 or any angle clearly and unambiguously identified as A. This also applies to [B] with Sine. If an answer is shown in the range in working and then incorrectly rounded award full marks.
		P1	for a correct equation using trigonometry eg $\cos [A] = 14 \div AB$	
		P1	(dep previous P mark) for rearranging their trigonometry equation to make AB the subject eg $(AB =) "14 \div \cos 36"$	
		A1	for an answer in the range 17.3 to 17.4	
26	$6n - 1$	M1	for $6n + k$, where $k \neq -1$ or missing	Accept a different variable for M1 only
		A1	oe	Note $n = 6n - 1$ gets M1 only

Modifications to the mark scheme for Modified Large Print (MLP) papers. Paper 3F.

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: ± 5 mm

PAPER: 1MA1_3F		
Question	Modification	Mark scheme notes
1	Boxes removed	Standard mark scheme
5	Diagram enlarged. Model provided for all candidates.	Standard mark scheme
6	(a) Diagram enlarged. Numbers moved above the scale.	Standard mark scheme
9	Diagram enlarged. Labels added above the shapes. V and K versions – 5 cut out shapes provided. Wording changed from ‘The diagram shows five shapes on a centimetre grid.’ to ‘It shows five shapes on a grid of squares.’	Standard mark scheme
10	Diagram enlarged. Mirror line labelled on the left-hand side of the grid. Shading changed to dotted shading. Cut out shape provided for all candidates. Wording added ‘You do not need to shade your shape.’	Standard mark scheme

PAPER: 1MA1_3F

Question	Modification	Mark scheme notes
12	Diagram enlarged. 10° markings added to the pie chart and a dot at the centre. Question wording changed from 60 people to 90 people. Frequencies changed as follows: Peas 40, Carrots 20, Mushrooms 30.	Amended mark scheme: M1 for method to find at least one angle eg P: $360 \div 90 \times 40 (=160)$ or C: $360 \div 90 \times 20 (=80)$ or $360 \div 90 \times 30 (=120)$ M1 for all 3 angles correctly calculated OR at least one accurately drawn angle A1 fully correct pie chart with labels
14	Diagram enlarged. Spike removed and dot added. Table turned to vertical format.	Standard mark scheme
17	Diagram enlarged. Wording 'A B C D E' added after pentagon. MLP only – x changed to y . Wording added 'Right angles are marked at A and E.' AB labelled $2y+1$, BC labelled $y+2$, AE labelled $4y$	Standard mark scheme
19	(a) Diagram enlarged.	Standard mark scheme
19	(c) MLP only - x changed to p .	Standard mark scheme with x changed to p
22	Wording added 'There are four spaces to fill.' Table turned to vertical format. Grid enlarged. Y axis changed to go up in units of 2 from -10 to 10.	Standard mark scheme
23	Diagram enlarged. Right axis labelled. Shading changed to dotted shading. Axes labels moved to the left of the horizontal axis and above the vertical axis.	Standard mark scheme
25	Diagram enlarged.	Standard mark scheme

