



Pearson

# Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCSE (9 – 1)  
In Mathematics (1MA1)  
Higher (Non-Calculator) Paper 1H

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Summer 2017

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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. (e.g.. 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 (e.g.. 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**

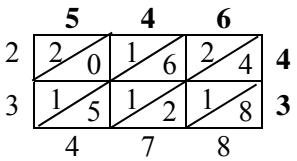
Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the 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.

### 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: 1MA1/1H																
Question	Working	Answer	Mark	Notes												
1 (a)		10,19	B1	cao												
(b)		positive	C1	positive (correlation)												
(c)		12 to 13	M1 A1	for an appropriate line of best fit drawn, or a point marked at $(x, 16.4)$ or a horizontal line drawn from 16.4 across to $(x, 16.4)$ where $x$ is in the range 12 to 13 hours given in the range 12 to 13												
(d)		explanation	C1	(yes) e.g. as the majority of points for high temperature appear when there are more hours of sunshine (positive correlation)												
2		$2 \times 2 \times 2 \times 7$	M1 A1	for complete method to find prime factors; could be shown on a complete factor tree with no more than 1 arithmetic error accept $2^3 \times 7$												
3	21840 1638 23478   <table border="1" data-bbox="273 1024 645 1129"> <tr> <td></td> <td>500</td> <td>40</td> <td>6</td> </tr> <tr> <td>40</td> <td>20000</td> <td>1600</td> <td>240</td> </tr> <tr> <td>3</td> <td>1500</td> <td>120</td> <td>18</td> </tr> </table> $20000 + 1600 + 240 + 1500 + 120 + 18 = 23478$		500	40	6	40	20000	1600	240	3	1500	120	18	234.78	M1 A1 A1	for complete method with relative place value correct including addition of all the appropriate elements of the calculation e.g. two lines of 1 <sup>st</sup> method, internal numbers of grids, or complete structure shown of partitioning methods  for digits 23478  (ft dep M1) for correct placement of the decimal point into their final answer
	500	40	6													
40	20000	1600	240													
3	1500	120	18													
4		$x^2 + 6x = 1$	M1 M1 A1	writes the area using algebraic terms e.g. $(x + 3) \times (x + 3)$ or at least two correct area expressions which may be written on the diagram or $x$ given as $\sqrt{10} - 3$  expands and includes the given 10 e.g. $x^2 + 3x + 3x + 9 = 10$ ; condone one error in the four terms when expanding or $10 - 3\sqrt{10} - 3\sqrt{10} + 9 + 6\sqrt{10} - 18 (=1)$ condone 1 error in the 6 terms  rearranges to give the given equation or shows surd expression simplifies to 1												

**Paper: 1MA1/1H**

Question	Working	Answer	Mark	Notes
5		70.5	P1 P1 P1 P1 A1	starts process of Pythagoras e.g. $5^2 + 12^2$ complete process for Pythagoras e.g. $\sqrt{5^2 + 12^2}$ or $\sqrt{25 + 144}$ or $\sqrt{169}$ (=13) (dep P1 for Pythagoras) process of adding all the lengths e.g. $5 + 5 + 12 + 12 + "13"$ (=47) (indep) process of multiplying at least 2 lengths by 1.5 cao SC: any evidence of working with Pythagoras award the P1 or P2
6		comparison	M1 A1	starts to manipulate expression e.g. $3y = 9x - 6$ or $3y = 9x - 5$ gives equation(s) which can be used to show that the gradients of the two lines are the same e.g. $y = 3x - 5/3$
7		72	P1 P1 A1	for showing the process of $30 \times 60$ (=1800) or $20 \times 54$ (=1080) (dep P1) for showing the complete process e.g. (" $1800$ " - " $1080$ ") $\div 10$ concluding the answer is 72 (and not 66)
8 (a) (b)		0.00000797 $6.3 \times 10^7$	B1 M1 A1	cao for partial calculation involving powers of 10 e.g. $0.63 \times 10^{5-3}$ or $6.3 \times 10^n$ where $n \neq 7$ or for $n \times 10^8$ or for 63000000 cao
9		500	M1 A1	recognition of 1.2 or 120% oe eg $600 \div 1.2$ oe or $x \times 1.2 = 600$ oe or $120\% = 600$ cao
10		$x^3 + 6x^2 + 11x + 6$	M1 M1 A1	for method to find the product of any two linear expressions (3 correct terms) e.g. $x^2 + x + 2x + 2$ or $x^2 + 2x + 3x + 6$ or $x^2 + x + 3x + 3$ for method of multiplying out remaining products, half of which are correct (ft their first product) e.g. $x^3 + x^2 + 2x^2 + 3x^2 + 2x + 3x + 6x + 6$ cao

**Paper: 1MA1/1H**

Question		Working	Answer	Mark	Notes
11	(a)		1, -3	B1	cao
	(b)		-0.75, 2.75	B1	accept -0.7 to -0.8, 2.7 to 2.8
	(c)		-2.8	B1	cao
12	(a)		$\frac{1}{9}$	M1 A1	for showing a method using either reciprocal or square root e.g. $\frac{1}{n}$ or 9 seen cao Accept $\pm\frac{1}{9}$ or 0.1 recurring
	(b)		$\frac{16}{25}$	M1 A1	for showing cube root of 64 as 4 and the cube root of 125 as 5 or $\frac{16}{n}$ ( $n \neq 25$ ) or $\frac{n}{25}$ ( $n \neq 16$ ) or an intention to find the cube root and square. cao Accept 0.64
13	(a)		$y = \frac{9}{x^2}$	M1 A1	begins to work with $y = \frac{k}{x^2}$ oe e.g. subs of a pair of numbers into $y = \frac{k}{x^2}$ or states $k=9$ for $y = \frac{9}{x^2}$ Accept $y = 9x^{-2}$
	(b)		$\frac{3}{4}$	M1 A1	ft (dep on previous M1) subs $y = 16$ into proportional formula of the form $y = \frac{k}{x^2}$ oe oe



**Paper: 1MA1/1H**

Question	Working	Answer	Mark	Notes
14		$\frac{1}{3}$	<p>P1</p> <p>P1</p> <p>P1</p> <p>A1</p>	<p>process to solve the problem e.g. <math>\frac{3}{10} \times \frac{4}{9} (= \frac{12}{90} = \frac{2}{15})</math> OR finds the number of white circles for their chosen number OR for 9 : 21 (or a multiple of 9 : 21)</p> <p>second step of the process e.g. <math>\frac{7}{10} \times \frac{2}{7} (= \frac{14}{70} = \frac{2}{10} = \frac{1}{5})</math> OR finds the number of black circles for their chosen number OR for a multiple of 2 : 5 where the ratio parts sum to "21"</p> <p>for complete process e.g. "<math>\frac{2}{15}</math>" + "<math>\frac{1}{5}</math>" <math>(= \frac{4}{30} + \frac{6}{30})</math> OR finds the total number of circles for their chosen number OR for 3 ratios that could be used to solve the problem eg 9 : 21 with 4 : 5 with 6 : 15</p> <p>for <math>\frac{1}{3}</math> oe</p>
15 (a)		3.5 to 4.5	<p>M1</p> <p>M1</p> <p>A1</p>	<p>substitution into formula <math>\frac{1}{3}\pi r^2 h</math> of chosen values for <math>r</math> and <math>V</math> (accept <math>r = 5.13</math> and <math>V = 98</math>) and starts rearrangement e.g. multiplies by 3, divides by <math>\pi</math> or divides by <math>r^2</math> (both sides)</p> <p>uses estimates in calculation e.g. <math>\frac{3 \times 100}{3 \times 25}</math> (or in rearranged formula) or <math>\frac{12}{\pi}</math></p> <p>arrives at a single value from estimate in the range 3.5 to 4.5</p>
(b)		more	C1	ft e.g. more since number in numerator goes up; numbers in denominator go down.
16		<p><math>2(2n-3)</math></p> <p>even</p>	<p>C1</p> <p>C1</p> <p>C1</p> <p>C1</p>	<p>correct expansion of brackets to give at least 3 terms from <math>n^2 - 2n - 2n + 4</math></p> <p>arrives at <math>n^2 - 2 - n^2 + 4n - 4</math> oe</p> <p>reduces to <math>2(2n-3)</math> or <math>4n - 6</math></p> <p>for conclusion e.g. <math>2(2n-3)</math> always even, <math>4n - 6</math> is always even since both are even numbers, they are multiples of 2.</p>

Paper: 1MA1/1H

Question	Working	Answer	Mark	Notes
17		$\frac{28}{72}$	P1  P1  P1  A1	for $\frac{6}{8}$ or $\frac{2}{8}$ or $\frac{7}{8}$ or $\frac{1}{8}$ oe seen on diagram or in a calculation  for $\frac{7}{9} \times \frac{2}{8}$ or $\frac{2}{9} \times \frac{7}{8}$ or $\frac{14}{72}$ oe  for $\frac{7}{9} \times \frac{2}{8} + \frac{2}{9} \times \frac{7}{8}$  or " $\frac{14}{72}$ " + " $\frac{14}{72}$ " oe  oe SC B1 for $\frac{14}{81}$ B2 for $\frac{28}{81}$  for $\frac{7}{9} \times \frac{6}{8}$ or $\frac{2}{9} \times \frac{1}{8}$ or $\frac{42}{72}$ or $\frac{2}{72}$ or $\frac{44}{72}$ oe  for $1 - (\frac{7}{9} \times \frac{6}{8} + \frac{2}{9} \times \frac{1}{8})$ or $1 - (\frac{42}{72} + \frac{2}{72})$  or $1 - \frac{44}{72}$ oe
18		$y = -2x + 21$	P1  P1  P1  A1	shows evidence of understanding that $AC$ is perpendicular to $DB$ , or states the gradient of $DB$ as 0.5 oe  shows a process to find the gradient of a perp. line e.g. use of $-\frac{1}{m}$ or states $y = -2x + c$ or states the gradient of $AC$ as $-2$  (dep on P2) for sub. of $x = 5, y = 11$ into $y = mx + c$ where $m$ is their found gradient for $AC$ .  oe

Paper: 1MA1/1H

Question	Working	Answer	Mark	Notes
19		$\frac{2}{5}$	<p>P1</p> <p>P1</p> <p>P1</p> <p>A1</p>	<p>for first step to solve the problem e.g. <math>\overline{AC} = -\mathbf{a} + \mathbf{c}</math> or <math>\overline{OX} = \frac{1}{2}\mathbf{a} + \frac{1}{2}\mathbf{c}</math> or demonstrates the location of <math>D</math> and <math>X</math> on the diagram</p> <p>for a correct vector statement using <math>\overline{CD}</math> eg <math>\overline{CD} = \overline{CX} + \overline{XD}</math> or <math>\overline{CD} = \overline{OD} - \overline{OC}</math> or <math>\overline{OD} = \frac{7}{2}\mathbf{c}</math> or <math>\overline{CD} = 2.5\mathbf{c}</math> oe</p> <p>for a correct equation or ratio using <math>k</math> eg equating <math>\overline{XD} = 3\mathbf{c} - \frac{1}{2}\mathbf{a} = \frac{1}{2}(-\mathbf{a} + \mathbf{c}) + \frac{1}{k}\mathbf{c}</math> or <math>\frac{\overline{OD}}{\overline{OC}} = \frac{k+1}{k}</math> or <math>k = \frac{1}{2.5}</math> or using a ratio approach eg <math>(\overline{OC} : \overline{CD}) = k : 1 = 1 : 2.5</math></p> <p>cao</p>
20		$x = -\frac{24}{5}$ $y = -\frac{7}{5}$ $x = -3,$ $y = 4$	<p>M1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p>	<p>for substitution of a rearrangement of <math>y - 3x = 13</math> e.g. <math>(3x + 13)^2 + x^2 = 25</math></p> <p>(dep M1) for expansion of bracket after substitution (at least 3 terms correct out of the 4 terms) e.g. <math>9x^2 + 39x + 39x + 169</math></p> <p>for forming quadratic ready for solving e.g. <math>10x^2 + 78x + 144 (= 0)</math></p> <p>for factorising e.g. <math>(5x + 24)(x + 3) (= 0)</math> oe</p> <p><math>x = -\frac{24}{5}, y = -\frac{7}{5}</math> and <math>x = -3, y = 4</math></p> <p>SC: B1 (if M0) for all 4 values mis-associated or one correct pair of values or values given as coordinates.</p>

**Paper: 1MA1/1H**

Question	Working	Answer	Mark	Notes
21			C1 C1 C1 C1	states (angle) $ABC = (\text{angle}) BCD$ states 2 <sup>nd</sup> link $AB = CD$ states 3 <sup>rd</sup> link with reason: $BC = BC$ (common) concludes proof by stating (triangle) $ABC \equiv (\text{triangle}) DCB$ with reason SAS and $AC = BD$
22	$\cos PBQ = \frac{10^2 + 10^2 - x^2(2 - \sqrt{3})}{200}$ $= \frac{200 - x^2(2 - \sqrt{3})}{200}$	Proof	B1 M1 M1 M1 A1	(indep) for stating $\cos 30 = \frac{\sqrt{3}}{2}$ for $PQ^2 = 10^2 + 10^2 - 2 \times 10 \times 10 \times \cos PBQ$ <b>or</b> $AC^2 = x^2 + x^2 - 2 \times x \times x \times \cos 30 (=x^2(2-\sqrt{3}))$ oe for $\cos PBQ = \frac{10^2 + 10^2 - PQ^2}{2 \times 10 \times 10}$ (implies previous M1) for $\cos PBQ = \frac{10^2 + 10^2 - (x^2 + x^2 - 2 \times x \times x \times \cos 30)}{2 \times 10 \times 10}$ conclusion of proof with all working seen

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

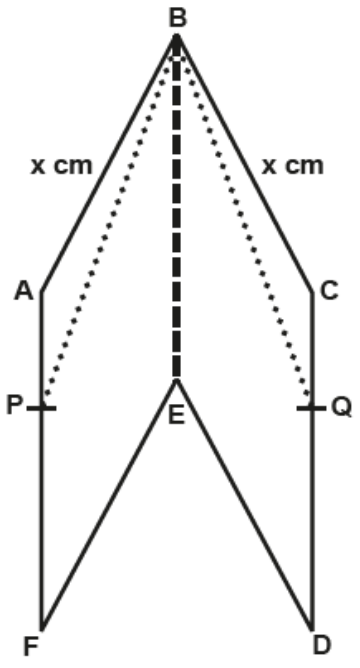
Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

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_1H		
Question	Modification	Mark scheme notes
1	Diagram enlarged. Right axis has been labelled. Crosses have been changed to solid circles.	Standard mark scheme but in (c) accept 12 to 14
4	Diagram enlarged. Arrows removed. Dashed lines at the top and left of the square extended. Dashes made longer and thicker.	Standard mark scheme
5	Diagram enlarged. Left hand side and top of shape labelled as well. Wording added 'The marked angles are right angles.' Braille only: will add labels <i>A B C D</i> etc. and information about the diagrams.	Standard mark scheme
10	$x$ has been changed to $y$	Standard mark scheme with $x$ replaced by $y$
11	Diagram enlarged.	Standard mark scheme if on 2mm grid, otherwise apply greater tolerance.
13	Table turned to vertical format.	Standard mark scheme
15	Only changes are to the formula box for a cone: diagram enlarged, dashes made longer and thicker, arrow heads changed to open headed arrows.	Standard mark scheme
18	Diagram enlarged. Dashed line added from $B$ to $D$	Standard mark scheme
19	Diagram enlarged. Diagonal line added from $A$ to $C$ and $X$ has been marked on the line as the midpoint.	Standard mark scheme
21	Diagram enlarged. Angle arcs made smaller.	Standard mark scheme

Question	Modification	Mark scheme notes
22	<p>Diagram enlarged. Labels 'x cm' added to the left and right side of the diagram. Dotted lines added between <math>B P</math> and <math>B Q</math>.</p> 	Standard mark scheme



Pearson

# Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCSE (9 – 1)  
In Mathematics (1MA1)  
Higher (Calculator) Paper 2H

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
1		98	P1 P1 A1  P1 P1 A1	for process to find P(1), eg. $1 - 0.17 - 0.18 - 0.09 - 0.15 - 0.1 (= 0.31)$ or for a process to find P(1 or 3), eg. $1 - 0.17 - 0.09 - 0.15 - 0.1 (= 0.49)$ for process to find the number of 3s eg. $0.18 \times 200 (=36)$ or process to find the number of 1s, e.g. $P(1) \times 200 (= 62)$ , or process to find the number of (1 or 3)s, eg $[P(1) + 0.18] \times 200$ or for process to find any expected frequency using any probability $\times 200$ eg. $0.17 \times 200$ cao  OR  for process to find P(2 or 4 or 5 or 6), eg. $0.17 + 0.09 + 0.15 + 0.1 (= 0.51)$ for process to find the number of (2 or 4 or 5 or 6)s, eg. “0.51” $\times 200 (= 102)$ cao



Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
2		Yes  (supported)	P1  P1  A1  P1  C1    P1  P1  A1  P1  C1	<p>for process to work out the total number of children, e.g. <math>117 \times 4 (= 468)</math></p> <p>(dep P1) for process to work out total number of adults or the total number of people, e.g. “468” <math>\times 5 \div 2 (= 1170)</math> or “468” <math>\times 7 \div 2 (= 1638)</math></p> <p>for 1170 or 1638</p> <p>for process to work out the percentage of theatre full, e.g. <math>\frac{“468”+“1170”}{2600} \times 100 (= 63)</math> or for a process to work out 60% of 2600 (<math>= 1560</math>)</p> <p>for a correct conclusion supported by correct figures e.g. 63% or 1560 <b>and</b> 1638</p> <p>OR</p> <p>for a process to work out 60% of 2600, eg. <math>\frac{60}{100} \times 2600 (= 1560)</math></p> <p>(dep P1) for process to work out this total number of children, e.g. “1560” <math>\times 2 \div 7 (= 445(.7\dots))</math></p> <p>for 445(.7\dots)</p> <p>for process to work out children in the circle, eg. “445(.7\dots)” <math>\div 4 (= 111 \text{ to } 112)</math></p> <p>for a correct conclusion supported by correct figures e.g. 111 to 112 [Where appropriate accept rounded or truncated values]</p>

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
2 cont.			<p>P1</p> <p>P1</p> <p>A1</p> <p>P1</p> <p>C1</p>	<p>OR</p> <p>for a process to find the maximum number of children, eg. <math>2600 \times 2 \div 7 (= 742(.8\dots))</math></p> <p>for process to work out the total number of children, e.g. <math>117 \times 4 (= 468)</math></p> <p>for 468 and <math>742(.8\dots)</math></p> <p>for <math>\frac{468}{742(.8\dots)} \times 100 (= 63)</math> or process to work out 60% of “<math>742(.8\dots)</math>” (<math>= 445(.7\dots)</math>)</p> <p>for a correct conclusion supported by correct figures e.g. 63% or 468 and <math>445(.7\dots)</math></p> <p>[Where appropriate accept rounded or truncated values]</p>
3		<p>Side elevation</p> <p>Front elevation</p>	<p>C2</p> <p>[C1]</p> <p>C2</p> <p>[C1]</p>	<p>for the side elevation (4 cm by 2 cm rectangle with a solid line drawn 1 cm from the 2 cm edge, and correct orientation)</p> <p>for the side elevation as a rectangle]</p> <p>for the front elevation as a trapezium in correct orientation with base 4 cm, parallel sides 1 cm and 4 cm</p> <p>for the front elevation as a trapezium with two right angles]</p> <p>[Ignore incorrect or no labelling]</p>

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
4 (a)		57.1	P1 P1 P1 A1	for a process to find time from Liverpool to Manchester, eg. $56 \div 70$ (= 0.8 (hrs) or 48 (mins)) for a process to find total distance, eg. $56 + 61$ (= 117) or the total time, eg. "48" + 75 (= 123) or "0.8" + $\frac{75}{60}$ (= 2.05) with consistent units of time (dep P2) for a correct process to find average speed with consistent units of time, eg. "117" $\div$ "2.05" or "117" $\div$ "123"
(b)		explanation	A1 C1	for answer in the range 57 to 57.1 for explaining that the time taken for the two parts of the journey must be the same or the distance from Leeds to York is $\frac{3}{4}$ of the distance from Barnsley to Leeds
5 (a)		3.9	M1 A1	for a ratio of $\frac{8.1}{5.4}$ (=1.5) oe or $\frac{5.4}{8.1}$ (=0.66..) oe or $\frac{2.6}{5.4}$ (= 0.48..) oe or $\frac{5.4}{2.6}$ (= 2.07..) oe cao
(b)		2.05	M1 A1	for $\frac{5.4}{8.1} \times 6.15$ oe (= 4.1) or $\frac{2.7}{8.1} \times 6.15$ oe or ft "scale factor" from (a) cao

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
6		Secure Bank (supported)	P1  P1  C1	for a process to work out the interest after one year e.g. $0.02 \times 25000 (=500)$ or $0.043 \times 25000 (=1075)$ or for 1.02 or 25500 or 1.043 or 26075  for process to find value of the investment after 3 years or the multiplicative factor for 3 years at one of the banks, e.g. $25000 \times 1.02 \times 1.02 \times 1.02$ oe ( $= 26530\dots$ ) or $1.02^3 (= 1.0612\dots)$ or $25000 \times 1.043 \times 1.009 \times 1.009$ oe ( $= 26546\dots$ ) or $1.043 \times 1.009 \times 1.009 (= 1.0618\dots)$ [accept total interest of 1530.. or 1546.. if final values of investment are not found] for Secure Bank from correct figures, eg. 26530.. and 26546.. or 1530... and 1546... or 1.0612... and 1.0618...
7		$4.755 \leq n < 4.765$	B2 [B1]	for $4.755 \leq n < 4.765$ for 4.755 or 4.765 or 4.7649]
8		12	M1 A1	for evidence of taking a reading from the graph from $h = 160$ for answer in the range 11.8 to 12.2
9		No (supported)	M2 [M1 C1  M2 C1	for the correct position of C or E for a correct position of B or D] for No with correct supporting evidence, eg. showing C and E in the correct positions  OR  for C is a rotation of $90^\circ$ anticlockwise about $O$ <b>or</b> E is a rotation of $90^\circ$ clockwise about $O$ for No with supporting evidence, eg. C is a rotation of $90^\circ$ anticlockwise about $O$ <b>and</b> E is a rotation of $90^\circ$ clockwise about $O$ .

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
10 (a)		Jupiter	B1	for Jupiter (accept $1.898 \times 10^{27}$ )
(b)		$4.5388 \times 10^{24}$	B1	for $4.5388 \times 10^{24}$ oe (e.g. $45.388 \times 10^{23}$ )
(c)		Yes (supported)	M1  A1	for $(4.35 \times 10^9) \div (4.14 \times 10^7)$ (= 105(.07..)) or $(4.14 \times 10^7) \times 100$ (= $4.14 \times 10^9$ ) or $(4.35 \times 10^9) \div 100$ (= $4.35 \times 10^7$ ) for Yes with correct supporting evidence
11		$9\frac{1}{3}$	M1  M1  M1  A1	for writing at least 2 fractions with a common denominator eg. $\frac{3(3x-2)}{12}, \frac{4(2x+5)}{12}, \frac{2(1-x)}{12}$ with at least one correct numerator or for $\frac{3x}{4} - \frac{2}{4} - \frac{2x}{3} - \frac{5}{3} = \frac{1}{6} - \frac{x}{6}$ (accept $+\frac{5}{3}$ instead of $-\frac{5}{3}$ )  (dep) for a method to eliminate all fractions in an equation, ignore errors in any expanded terms eg. $3(3x - 2) - 4(2x + 5) = 2(1 - x)$ or $6 \times [3(3x - 2) - 4(2x + 5)] = 12 \times [1 - x]$ or $3 \times 3x - 3 \times 2 - 4 \times 2x - 4 \times 5 = 2 \times 1 - 2 \times x$  OR for the correct expansion of brackets leading to $\frac{9x-6-8x-20}{12} = \frac{2-2x}{12}$  (dep on M2) for correctly isolating terms in $x$ and number terms of their linear equation e.g. $9x - 8x + 2x = 2 + 6 + 20$ for $9\frac{1}{3}$ oe



Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
15		Proof	C1  C1  C1	<p>for identifying one pair of equal angles with a correct reason, e.g. (angle) <math>BAE =</math> (angle) <math>CDE</math>; <u>angles</u> in the same <u>segment</u> are equal or <u>angles</u> at the circumference <u>subtended</u> on the same <u>arc</u> are equal or for identifying two pairs of equal angles with no correct reasons given (angles must be within the appropriate triangles)</p> <p>for identifying a second pair of equal angles with a correct reason, e.g. (angle) <math>AEB =</math> (angle) <math>DEC</math>; <u>opposite angles</u> or <u>vertically opposite angles</u> are equal or for identifying the three pairs of equal angles with no correct reasons given</p> <p>for stating the three pairs of equal angles of the two triangles e.g. <math>ABE = DCE</math>, <math>BEA = CED</math>, <math>EAB = EDC</math> with fully correct reasons</p>
16			M1 M1  C1  M1 M1 C1	<p>for the start of a method to convert <math>0.22\ldots</math> to a fraction, eg <math>10y = 2.22\ldots</math> or <math>(y=) \frac{2}{9}</math></p> <p>for the start of a method to convert <math>0.13636\ldots</math> to a fraction, <math>10x = 1.3636\ldots</math> or <math>100x = 13.6363\ldots</math> or <math>1000x = 136.3636\ldots</math> or <math>(x=) \frac{13.5}{99}</math> or <math>(x=) \frac{135}{990}</math></p> <p>for correct arithmetic and concluding the proof</p> <p>OR</p> <p>for <math>0.1\dot{3}\dot{6} \times 0.\dot{2} = 0.\dot{0}\dot{3}</math> (<math>= z</math>)</p> <p>for complete method to find two appropriate recurring decimals the difference of which is a rational number, eg. <math>100z = 3.0303\ldots</math>, (<math>z =</math>) <math>0.0303\ldots</math> or <math>\frac{3}{99}</math></p> <p>for correct arithmetic and concluding the proof</p>

Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
17		66.5	B1 P1 P1 P1 A1	for recognising an angle of 60 at $AOB$ for a process to find the area of the sector, e.g. $\frac{60}{360} \times \pi \times 11^2$ (= 63.3.. or $\frac{121\pi}{6}$ ) for a process to find the area of the triangle, e.g. $\frac{1}{2} \times 7^2 \times \sin 60$ (=21.2.. or $\frac{49\sqrt{3}}{4}$ ) for a process to find the required percentage, eg. $\frac{63.3.. - 21.2..}{63.3..} \times 100$ for answer in the range 66.5 to 66.6
18		1.45	P1 P1 A1 OR P1 A2	for converting to a common base with at least one correct conversion, eg. $(16 =) 2^4$ or $(8 =) 2^3$ P1 (dep) for correct use of index laws to derive an equation, eg. $4 \times \frac{1}{5} + x = 3 \times \frac{3}{4}$ oe A1 for 1.45 oe (accept $2^{1.45}$ ) OR P1 for a process to find the value of $2^x$ , eg. $8^{\frac{3}{4}} \div 16^{\frac{1}{5}} = 2.73\dots$ A2 for 1.45 oe (accept $2^{1.45}$ )
19		$a = 4, b = -42$	M1 M1 M1 A1	for at least two terms from $2(x - 3)(x + 3), (x + 2)(x + 3), (x - 6)(x - 3)$ M1 (dep) for the correct expansion of at least two expressions, irrespective of signs, eg. $2x^2 - 18, x^2 + 2x + 3x + 6, x^2 - 6x - 3x + 18$ oe M1 for $2x^2 - 18 - x^2 - 5x - 6 - x^2 + 9x - 18$ A1 for $a = 4, b = -42$ (accept $4x - 42$ )



Paper: 1MA1/2H				
Question	Working	Answer	Mark	Notes
20 (a)		-0.4 to -0.2 and 3.2 to 3.4	M1 A1	for $(y =) x + 4$ for answers in the range -0.4 to -0.2 and 3.2 to 3.4
(b)		1.6 to 2.5	M1 M1 A1	for drawing a tangent to the curve at $x = 2$ for method to find gradient of their tangent for answer in the range 1.6 to 2.5
21		8600	P1 P1 P1 A1	for process to find the length of the rectangle, e.g. $24 \times 4 (= 96)$ for process to find the perpendicular height of an equilateral triangle of side $(24 \times 2)$ cm, e.g. $48\sin 60 (= 41.5(69..))$ or $\sqrt{48^2 - 24^2} (= 24\sqrt{3}$ oe) for complete process to find the width of rectangle, e.g. “ $41.5(69..)$ ” + $24 + 24 (= 89.5(69..))$ for answer in the range 8592 to 8602
22		$2n^2 + n + 1$	M1 M1 A1	for a correct start to a method to find $n$ th term, eg. equal 2nd differences imply a term in $n^2$ or sight of $an^2 + bn + c$ for a method leading to $2n^2$ and either $n$ or 1 for $2n^2 + n + 1$ oe
23		$y = \frac{-3}{\sqrt{7}}x + \frac{8}{\sqrt{7}}$	M1 M1 A1	for method to find gradient of $OP$ , eg. $\frac{\sqrt{7}}{2} \div \frac{3}{2} (= \frac{\sqrt{7}}{3}$ or $0.88 \dots)$ oe  (dep) for method to find gradient of tangent, $m$ , eg. $\frac{\frac{\sqrt{7}}{2}}{\frac{2}{3}} \times m = -1$ ( $m = \frac{-3}{\sqrt{7}}$ or $-1.13..$ ) for $y - \frac{\sqrt{7}}{2} = \frac{-3}{\sqrt{7}}(x - \frac{3}{2})$ or $y = \frac{-3\sqrt{7}}{7}x + \frac{8\sqrt{7}}{7}$ oe or $y - 1.32.. = -1.13..(x - 1.5)$

## 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:

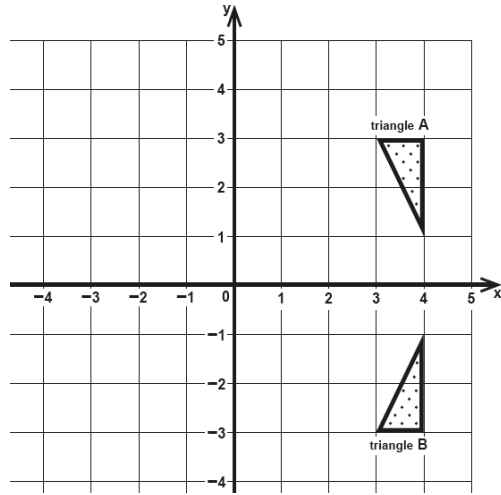
Angles:  $\pm 5^\circ$

Measurements of length:  $\pm 5$  mm

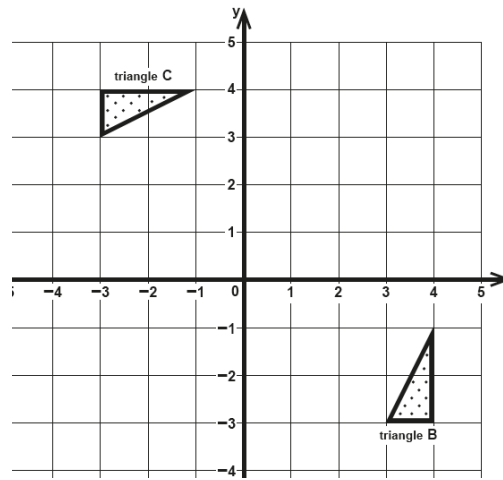
<b>PAPER: 1MA1_2H</b>		
<b>Question</b>	<b>Modification</b>	<b>Mark scheme notes</b>
1	Table turned to vertical format.	Standard mark scheme
3	Alternative question. Model has been provided for all candidates. Diagram enlarged and also provided for MLP. The measurements on the prism have been doubled. Wording added next to the diagram of the trapezium 'Diagram NOT accurately drawn'. Four shapes have been provided below the trapezium labelled A to D. Wording added above the four shapes 'scale: 2 cm to 1 metre'. Question wording has changed and has been split into two parts: 'Look at the model or at the diagrams for Question 19 in the Diagram Book. They show a prism with a cross section in the shape of a trapezium. All measurements are in metres. Below the prism there are four shapes A, B, C and D. (i) Which shape shows the front elevation of the prism? (ii) Which shape shows the side elevation of the prism?'	Mark scheme amended as follows: (i) B2 for C  (ii) B2 for A (B1 for B or D)
5	Diagram enlarged. Measurements '2.6 cm' and '5.4 cm' added to the diagram.	Standard mark scheme
8	Grid enlarged. Right axis labelled	Standard mark scheme but allow an answer in the range 11 to 13.

PAPER: 1MA1_2H		
Question	Modification	Mark scheme notes
9	<p>The question has changed and has been split into 3 parts, (a), (b) and (c). There is a separate grid with different triangles on each grid:</p> <p>(a) Triangles A and B have been drawn on the grid.            (b) Triangles B and C have been drawn on the grid.            (c) Triangles A, B, C and D have been drawn on the grid.</p> <p>The questions for each part now is:</p> <p>(a) It shows triangle A and triangle B given on a grid.            Describe the single transformation that maps triangle A onto triangle B.            (b) It shows triangle B and triangle C given on a grid.            Describe the single transformation that maps triangle B onto triangle C.            (c) It shows triangles A, B, C and D given on a grid.            Amy reflects triangle A in the line <math>y = x</math> to get triangle D            She is then going to reflect triangle D in the <math>x</math>-axis to get triangle E            Amy says that triangle E should be in the same place as triangle C. Is Amy correct?            You must show how you get your answer. There is a cut out shape available for you to use</p>	<p>The mark scheme for this amended question is as follows:</p> <p>(a) B1 for “reflection in the <math>x</math>-axis”            (b) B1 for “reflection in the line <math>y = x</math>”            (c) Standard mark scheme:            for No with correct supporting evidence eg showing C and E in the correct positions or stating C is a reflection in the <math>y</math>-axis rather than the <math>x</math>-axis</p>
10	Rows ‘Mars’ and ‘Saturn’ removed. Wording ‘eight’ changed to ‘six’	Standard mark scheme.
11	MLP only: $x$ changed to $y$ .	Standard mark scheme but $x$ changed to $y$ .
12	Diagram enlarged. Wording added ‘It shows a probability tree diagram.’ Wording added ‘Mr Lear drew a probability tree diagram to show the information	Standard mark scheme.
13	Diagram enlarged. Right axis has been labelled. Lines on the histogram moved. 50-60 moved to 2.0; 60-90 moved to 0.5	Standard mark scheme.
14	Diagram enlarged. Wording added ‘There are four spaces to fill.’ Graphs labelled ‘Graph A, Graph B, Graph C’ etc.	Standard mark scheme.
15	Diagram enlarged.	Standard mark scheme.
17	Diagram enlarged. Shading changed to dotted shading.	Standard mark scheme.
19	MLP only: $x$ changed to $y$ .	Standard mark scheme but $x$ changed to $y$ .
20	Diagram enlarged.	Standard mark scheme.
21	Diagram enlarged.	Standard mark scheme.

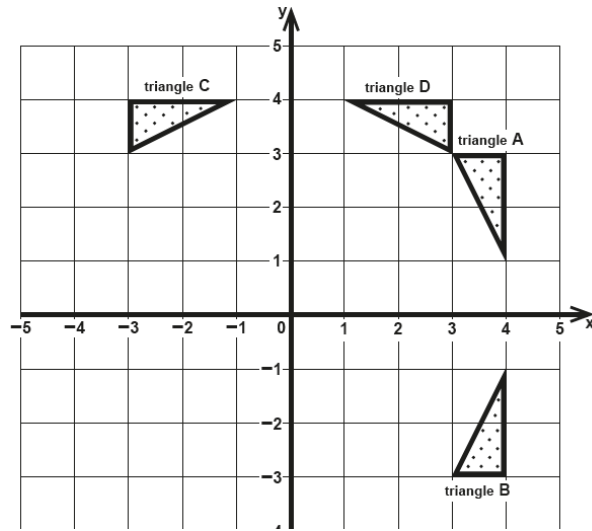
(a)



(b)



(c)





Pearson

# Mark Scheme (Results)

Summer 2017

Pearson Edexcel GCSE (9 – 1)  
In Mathematics (1MA1)  
Higher (Calculator) Paper 3H

Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
1 (a)		Venn Diagram	B1 M1 M1 C1	<p>for labels on diagram</p> <p>for just 15 in the intersection</p> <p>for just 5 and 25 in only set B or just 3, 9, 21 and 27 in only set A or just 1, 7, 11, 13, 17, 19, 23, 29 in <math>(A \cup B)'</math></p> <p>for all numbers correctly placed in the Venn Diagram</p> <p>Ignore all entries except the region you are marking for each method mark</p>
(b)		$\frac{7}{15}$	P1 A1	<p>ft for <math>\frac{"7"}{a}</math> where <math>a \geq "7"</math> or <math>\frac{b}{"15"}</math> where <math>b \leq "15"</math></p> <p>ft <math>\frac{7}{15}</math> oe</p>
2		$x = -\frac{2}{3}$ $y = -2$	M1 M1 A1	<p>for a method to eliminate one variable (condone one arithmetic error)</p> <p>(dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error)</p> <p><math>x = -\frac{2}{3}</math> oe and <math>y = -2</math></p>
3 (a)		12	B1	cao
(b)		Explanation	C1	No with statement about not being mutually exclusive events eg a person could be in both categories

Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
4		68	<p>P1 for a process to find the number of vanilla cakes, eg <math>420 \times 2 \div 7</math> oe (= 120)</p> <p>P1 for a process to find the number of banana cakes, eg <math>420 \times 0.35</math> oe (= 147)</p> <p>P1 (dep P1) for a full process to find the number of lemon/chocolate cakes eg <math>420 - (\text{vanilla cakes}) - (\text{banana cakes})</math> (= 153)</p> <p>P1 (dep on previous P1) for a process to find the number of lemon cakes eg "<math>153 \div 9 \times 4</math>" oe (= 68)</p> <p>A1 cao</p> <p>OR</p> <p>P1 for writing two proportions in the same format</p> <p>P1 for combining the proportions of vanilla and banana cakes eg <math>2/7 + 7/20</math> (= <math>89/140</math>)</p> <p>P1 (dep P1) for a full process to find the proportion or number of lemon/chocolate cakes eg <math>1 - "89/140"</math> (= <math>51/140</math>)</p> <p>P1 (dep on previous P1) for a process to find the number of lemon cakes eg "<math>51/140 \times 420 \div 9 \times 4</math>" (= 68)</p> <p>A1 cao</p>	
5		Shows polygon is a hexagon	<p>M1 for a complete method to find the interior or exterior angle of the dodecagon eg <math>180 - \frac{360}{12}, \frac{180}{12}(12 - 2)</math> oe (= 150), <math>360 \div 12</math> (=30)</p> <p>M1 for a complete method to find the interior angle of polygon <b>P</b> eg at <i>B</i> or <i>C</i>: <math>360 - "150" - 90</math> (= 120) or "<math>30</math>" + 90 (= 120) <b>or</b> for a complete method to find the interior or exterior angle of the hexagon</p> <p>eg <math>180 - \frac{360}{6}, \frac{180}{6}(6 - 2)</math> oe (= 120), <math>360 \div 6</math> (= 60)</p> <p>A1 for 30 and 120 <b>or</b> 30 and 60 <b>or</b> 120 and 150 <b>or</b> 60 and 150</p> <p>C1 complete solution, fully supported by accurate figures</p>	

Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
6		1.01	P1 P1 P1 A1	fruit syrup $15 \times 1.4 (= 21)$ or water $280 \times 0.99 (= 277.2)$ or apple juice $25 \times 1.05 (= 26.25)$ (dep P1) for complete process to find the total mass e.g. “277.2” + “26.25” + “21” (= 324.45) or a weighted density eg $15 \times 1.4 \div 320 (= 0.065625)$ or $280 \times 0.99 \div 320 (= 0.86625)$ or $25 \times 1.05 \div 320 (= 0.08203125)$ (dep P2) for complete process to find the density eg “324.45” $\div 320 (=1.01..)$ or “0.065625” + “0.86625” + “0.08203125” (= 1.0139..) 1.01 to 1.014
7		5.86	M1 A1	for $\sin 23 = \frac{AB}{15}$ NB Allow any alternative equivalent method to form an equation in $AB$ 5.8 to 5.9
8		5.59	M1 M1 M1 A1	For use of $\pi r^2 = 49$ , where $r$ is the radius or $r = 3.9(49\dots)$ or diameter = $7.8(9865\dots)$ For use of Pythagoras to set up an equation in $x^2$ e.g. $x^2 + x^2 = (d)^2$ or $x^2 = r^2 + r^2$ (dep on M2) Rearrange to ( $x^2 =$ ) $2 \times “3.949\dots”^2$ 5.5 to 5.6 For use of trigonometry to set up an equation in $x$ eg $\sin 45 = x \div d$ Rearrange to ( $x =$ ) “7.898..” $\times \sin 45$ oe
9	(a)	180	M1 A1	for evidence of using the LQ (150) and UQ (330) eg $330 - 150$ cao
	(b)	60,180,300,350,650	B2 (B1)	for fully correct box plot for showing a box and at least 3 correctly plotted values
	(c)	Medians 250 and 300	C1	for a correct comparative statement relevant to the question e.g. Yes because the female students have a greater median than the male students



Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
10		6 (%)	P1 P1 A1	for $y^5$ oe or $8029.35 \div 6000$ for a process to find $1+x$ e.g. $\sqrt[5]{(8029.35 \div 6000)}$ or 1.06 or 1.0599.. 5.99 to 6
11		No (supported)	P1 C1	Process to find number of rose trees e.g. $215 \div 17 (=12.647\dots)$ or show number of choices with 12 and 13 eg $17 \times 12 = 204$ and $17 \times 13 = 221$ No with interpretation that 12.6.. is not a whole number or a whole number of plants must be bought or number of plants would have to be between 12 and 13 which is not possible
12		3 : 4 : 11	P1 P1 A1	Makes a start e.g. by using multipliers e.g. $1 + 5 = 6$ and $7 + 11 = 18$ and $6 \times 3 = 18$ or $AB:BD = 3:15$ or $x=3y$ (appropriate $x$ and $y$ shown) or $\frac{1}{6} = \frac{3}{18}$ Complete process to find ratios e.g. $(7 + 11) \div (1 + 5) = 3$ and $1 \times "3" : 7 - ("3" \times 1) : 11$ oe
13		$y \geq -2, y \geq x$ and $y \leq 0.5x + 1$	M1 M1 M1 A1	$y = -2$ indicated; accept any inequality for " $\geq$ " $y = x$ oe indicated; accept any inequality for " $=$ " $y = 0.5x + 1$ oe indicated; accept any inequality for " $=$ " $y \geq -2, y \geq x$ and $y \leq 0.5x + 1$
14 (a)		$\frac{x + 4}{2x + 3}$	M1 M1 A1	Factorising the denominator $(2x \pm 3)(x \pm 4)$ or $2\left(x \pm 1\frac{1}{2}\right)(x \pm 4)$ Factorising the numerator $(x - 4)(x + 4)$ oe
(b)		$v = \frac{15t}{w + 30}$	M1 M1 A1	A correct step towards solution e.g. expanding brackets to get $15t - 30v$ or multiply both sides by $v$ For a method to rearrange the formula to isolate terms in $v$ eg $vw + 30v = 15t$ oe

Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
15		2.63	P1 P1 P1 P1 A1	for setting up the expression $\frac{1}{2}(x + 3)(2x - 1) \sin 45$ (may be seen in an equation) (dep) for expanding the brackets in the expression or for the equation $\frac{1}{2}(x + 3)(2x - 1) \sin 45 = 6\sqrt{2}$ oe (dep) for the process to set up the equation and rearrange to the form $ax^2 + bx + c = d$ e.g. to $2x^2 + 5x - 27 = 0$ or $24 = 2x^2 + 5x - 3$ (dep) for substitution into the quadratic formula e.g. $\frac{-5 \pm \sqrt{5^2 - 4 \times 2 \times -27}}{4}$ for 2.63(10436...)
16 (a)		$x_1 = -2.64$ $x_2 = -2.57392$ $x_3 = -2.603767255$	M1 M1 A1	for substitution of $-2.5$ into the equation (to get $x_1 = -2.64$ ) for substitution of " $x_1 = -2.64$ " and " $x_2 = -2.57392$ " to give $x_2$ and $x_3$ for $x_1 = -2.64$ oe, $x_2 = -2.57(392)$ and $x_3 = -2.6(03767255)$ Condone $x_3 = -2.61$ if $x_2 = -2.57$ is used in the substitution
(b)		Statements	C1 C1	Connection between equation and iterative form in (a) e.g. rearrangement Statement e.g. iteration is an estimation of a solution
17 (a)		No (supported)	P1 P1 P1 C1	for 265 or 275 or 274.999... or 107.5 or 112.5 or 112.4999... process to find $\frac{d}{t}$ where $270 < d \leq 275$ and $107.5 \leq t < 110$ oe for process to work in consistent units of time eg $\frac{d}{t} \times 60$ or $t \div 60$ where $265 \leq d \leq 275$ and $107.5 \leq t < 110$ oe or $160 \div 60 (= 2.666..)$ Conclusion supported with correct figure(s) given eg No and 153(.488..) or No and 2.66 to 2.7 and 2.5(581..) from correct working
(b)		Statement	C1	e.g. Less distance in the same time so (max) speed would drop

Paper 1MA1: 3H				
Question	Working	Answer	Mark	Notes
18	Note $DOC=DOA$ , $ADO=CDO$	21.6	P1 P1 P1 P1 A1	Recognises that $OAD$ or $OCD$ is $90^\circ$ or right angle for using trigonometry to set up an equation in $DOA$ or $ADO$ eg $\text{Cos } DOA = \frac{5}{9}$ for using inverse trigonometry to find $DOA$ or $ADO$ eg $DOA = \text{Cos}^{-1} \frac{5}{9}$ ( $= 56.25\dots$ ) for a complete process to find arc length $ABC$ or $AC$ eg $\frac{360-2 \times "56.25.."}{360} \times 2 \times \pi \times 5$ ( $=21.598..$ ) or $\frac{2 \times "56.25.."}{360} \times 2 \times \pi \times 5$ ( $=9.8174..$ ) for answer in the range 21.5 to 21.65
19		$x < -2, x > \frac{1}{2}$	M1 A1 A1	for a first step to solve the quadratic e.g. factorisation: $(2x + 4)(x - \frac{1}{2})$ or $(2x - 1)(x + 2)$ or using the formula $\frac{-3 \pm \sqrt{3^2 - 4 \times 2 \times (-2)}}{2 \times 2}$ for $-2$ and $\frac{1}{2}$
20 (a)		(0,1)	B1	(0,1)
(b)		Circle radius 4 Centre (3,0) and (-1,0) and (7,0) labelled	M1 M1 A1	For centre (3,0) implied by drawing or label or a circle of radius 4 or intersections on the $x$ -axis at $-1$ or $7$ implied by drawing or labels for 2 of centre (3,0) implied by drawing or label intersections on the $x$ -axis at $-1$ and $7$ implied by drawing or label circle drawn with radius 4 for a fully correct answer

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

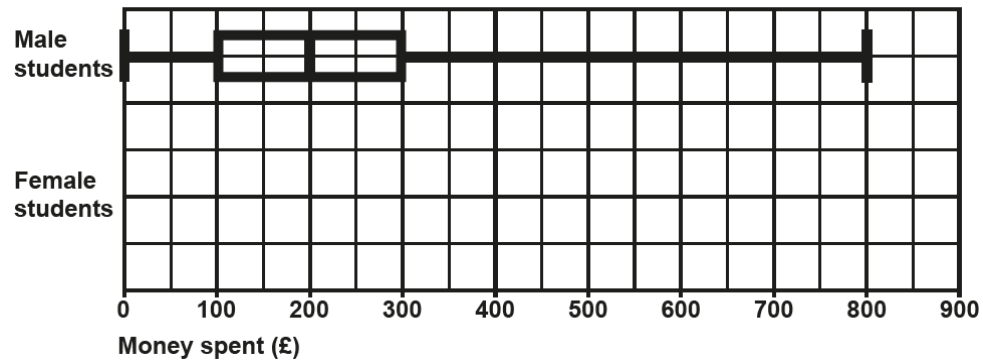
Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme.

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_3H		
Question	Modification	Mark scheme notes
1	Diagram enlarged. Braille only: will label the circles 'Set A' and 'Set B' and will label all the places which need to be answered (i) to (iv).	Standard mark scheme accept for Braille award C2 for a fully correct diagram.
5	Diagram enlarged.	Standard mark scheme
7	Diagrams enlarged. The smaller triangle on the right has been rotated so it is facing the opposite triangle. Braille only: will give information about the triangles in written form.	Standard mark scheme
9	(a) Diagram enlarged. Points on the Male box plot changed to: 0, 100, 200, 300 and 800. Horizontal axis label has been moved to the left of the horizontal axis. Label 'Female students' added to the left of the grid below 'Male students'. Axis has been cut so the horizontal axis finishes at 900.	Amend mark scheme to read: M1 "for evidence of taking & using readings at LQ and UQ eg 300 – 100" A1 for 200 [as the answer to (a)]  Median 200, IQR 200



<b>PAPER: 1MA1_3H</b>			
<b>Question</b>		<b>Modification</b>	<b>Mark scheme notes</b>
9	(b)	Numbers on the table changed to: 50, 150, 300, 350 and 650. Wording changed to: 'On the grid for Question 9, draw a box plot for the information in the table. Draw this below the box plot for the Male students.'	Standard mark scheme Median 300, IQR 200
13		Diagram enlarged. Shading changed to dotted shading.	Standard mark scheme
15		Diagram enlarged. Angle size moved outside of the angle arc and the arc has been made smaller. MLP only: $x$ changed to $y$ .	Standard mark scheme except using $y$ instead of $x$ .
18		Diagram enlarged.	Standard mark scheme
20	(b)	A blank set of $x$ and $y$ axes have been provided.	Standard mark scheme

