Mark Scheme (Results)

Summer 2022

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

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General marking guidance

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

1 All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first. Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the response should be sent to review.

2 All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no answer) indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

Questions where working is not required: In general, the correct answer should be given full marks.
Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

3 Crossed out work

This should be marked **unless** the candidate has replaced it with an alternative response.

4 Choice of method

If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.
If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

5 Incorrect method

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

6 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (eg an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

8 Probability

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9 Linear equations

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

10 Range of answers

Unless otherwise stated, when an answer is given as a range (eg 3.5 – 4.2) then this is inclusive of the end points (eg 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 eg 2 × 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 eg "12" × 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 eg [area] × 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: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	$x < 5$	M1	for adding 27 to both sides or dividing throughout by 7 (in an inequality or an equation) as a first step **or** showing 5 as the critical value	 Can be written as $x = 5$
		A1	cao	
2	$2 \times 2 \times 31$	M1	for a complete method to find prime factors; could be shown on a complete factor tree with no more than one error **or** by division by prime factors with no more than one error **or** for 2, 2, 31, (1)	Condone the inclusion of 1 for this mark
		A1	for $2 \times 2 \times 31$ oe	Accept $2^2 \times 31$

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
3	30	P1	for $160 \div (3+7)$ (= 16) **or** $\frac{3}{3+7}$ (= $\frac{3}{10}$)	
		P1	for "16" × 3 (= 48) **or** "$\frac{3}{10}$" × 160 (= 48)	
		P1	for a correct step using 48 eg "48" ÷ 8 (= 6) **or** "48" × 25 ÷ 100 (= 12) **or** (indep) for combining $\frac{1}{8}$ and 25%, eg $\frac{1}{8} + \frac{1}{4}$ (=$\frac{3}{8}$) or "0.125" + "0.25" (= 0.375) or "12.5"(%) + 25(%) (= 37.5(%))	
		P1	for a complete process to find the number of petrol cars, eg "48" – "6" – "12" oe **or** (1 – "$\frac{3}{8}$") × "48" oe **or** "$\frac{3}{10}$" × (1 – "$\frac{3}{8}$") × 160 oe	
		A1	cao SC B2 for an answer of 100 if P0 scored	Award no marks for a correct answer with no supportive working
4 (a)	0.00163	B1	cao	
(b)	4.38×10^5	B1	cao	
(c)	2.4×10^{-1}	M1	for $4\times6\times10^{3-5}$ **or** 0.24 oe eg 24×10^{-2} **or** 2.4×10^{n} where $n \neq -1$	
		A1	cao	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5	132	M1	for finding an exterior angle eg 360 ÷ 6 (= 60) **or** 360 ÷ 5 (= 72) **or** an interior angle eg 180 × 4 ÷ 6 (= 120) or 180 × 3 ÷ 5 (= 108)	Angles may be shown on the diagram. Only award this mark for an angle that is not contradicted
		M1	for a complete method eg 360 − "120" − "108" or "60" + "72"	
		A1	cao	Answer only award no marks
6 (a)	5,(1),(-1),-1,1,5	B2	for all 4 values correct	
		(B1	for 2 or 3 correct values)	
(b)	Graph drawn	B2	for a fully correct graph	Accept a freehand curve drawn that is not made of line segments
		(B1	ft (dep on B1 in (a)) for plotting at least 5 of the points from their table correctly)	Ignore anything drawn outside the required range
(c)	0.3 to 0.5 and 2.5 to 2.7	M1	for a correct method, eg marking intercepts with *x*-axis **or** one correct solution **or** both solutions given as a coordinates, eg (0.4, 2.6) or (0.4, 0) **and** (2.6, 0)	ft their graph for this mark Accept these coordinates reversed
		A1	for answers in the range 0.3 to 0.5 and 2.5 to 2.7 **or** ft their graph with at least 2 solutions	
7	3 : 2	P1	for a process to find either volume eg 3^3 (= 27) or 4^3 (= 64)	
		P1	for showing density **A** = 81 ÷ "27" (= 3) or density **B** = 128 ÷ "64" (= 2)	
		A1	for 3 : 2 oe	Ignore units quoted

<table>
<tr><th colspan="4">Paper: 1MA1/1H</th></tr>
<tr><th>Question</th><th>Answer</th><th>Mark</th><th>Mark scheme</th><th>Additional guidance</th></tr>
<tr><td>8</td><td>19</td><td>M1</td><td>for a method to find 5 products within intervals (including end points)</td><td><table><tr><th>Min fx</th><th>Max fx</th></tr><tr><td>0</td><td>80</td></tr><tr><td>100</td><td>200</td></tr><tr><td>140</td><td>210</td></tr><tr><td>60</td><td>80</td></tr><tr><td>120</td><td>150</td></tr></table></td></tr>
<tr><td></td><td></td><td>M1</td><td>for Σ“fx” ÷ (8 + 10 + 7 + 2 + 3)
or (5×8 + 15×10 + 25×7 + 35×2 + 45×3) ÷ (8 + 10 + 7 + 2 + 3)
or (“40” + “150” + “175” + “70” + “135”) ÷ “30”
or “570” ÷ “30”</td><td>Σ“fx” must come from 5 products fx within intervals (including end points)</td></tr>
<tr><td></td><td></td><td>A1</td><td>cao</td><td></td></tr>
<tr><td>9</td><td>278</td><td>P1</td><td>for working out at least 3 areas from
5 × 7 (= 35)
5 × 6 (= 30)
7 × 6 (= 42)
4 × 4 (= 16)</td><td></td></tr>
<tr><td></td><td></td><td>P1</td><td>for a complete process,
eg “35”× 2 + “30”× 2 + “42” + (“42” – “16”) + “16” × 5 oe
or “35”× 2 + “30”× 2 + “42” × 2 + “16” × 4

OR

for a process to find the total surface area of at least 5 faces for each solid,
eg “35”× 2 + “30”× 2 + “42” and “16”× 6
or “35”× 2 + “30”× 2 + “42”× 2 and “16”× 5</td><td>Total surface area of cuboid = 214
Total surface area of cube = 96</td></tr>
<tr><td></td><td></td><td>A1</td><td>cao</td><td></td></tr>
</table>

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10 (a)	10, 25, 50, 80, 85,100	B1	cao	
(b)	Graph drawn	M1	for 5 or 6 of their points plotted correctly from a cf table with no more than one error	If histograms drawn, plots must be identified.
		A1	for a fully correct graph SC B1 for 5 or 6 cf values plotted at correct heights not at end but consistently within each interval and joined provided no gradient is negative	Accept a smooth curve or line segments. Ignore to the left of the first point and right of the last point.
(c)	35 to 39	B1	for answer in the range 35 to 39 **or** ft their graph (if possible)	
(d)	85 to 93	M1	for finding the difference between readings taken from the profit axis at points from a cf of 25 and a cf of 75 ft their graph (if possible)	
		A1	for answer in the range 85 to 93 **or** ft their graph (if possible)	If answer is in the range award the marks unless from obvious incorrect working
11	8	P1	for a start to the process, eg $\frac{9}{9+4+x}$ **or** $(\frac{3}{7} =) \frac{9}{21}$ **or** states that the total number of sweets is 21	
		P1	for forming a correct equation without fractions, eg $9 \times 7 = 3(9 + 4 + x)$ **or** $21 = 9 + 4 + x$ **OR** for $21 - 9 - 4$ oe **or** $1 - \frac{9}{21} - \frac{4}{21}$ $(= \frac{8}{21})$	
		A1	cao	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12	$\frac{116}{990}$	M1	for (x =) 0.11717... **or** (10x =) $1.\dot{1}\dot{7}$ or 1.1717... **or** (100x =) $11.\dot{7}\dot{1}$ or 11.7171... **or** (1000x =) $117.\dot{1}\dot{7}$ or 117.1717...	
		M1	(dep M1) for a method using two recurring decimals that leads to a terminating decimal difference, using correct multiples of x eg (1000x – 10x =) $117.\dot{1}\dot{7} - 1.\dot{1}\dot{7}$ (= 116) or 117.1717... – 1.1717... (= 116)	Accept (100x – x =) $11.\dot{7}\dot{1} - 0.1\dot{1}\dot{7}$ or 11.7171... – 0.11717... (= 11.6)
		A1	for $\frac{116}{990}$ oe, eg $\frac{58}{495}$	$\frac{11.6}{99}$ must be written in the form $\frac{a}{b}$ where a and b are integers to gain the accuracy mark

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13	Relationship shown	M1	for use of Pythagoras' theorem, eg $d_A{}^2 = d_B{}^2 + d_C{}^2$ **or** $a^2 = b^2 + c^2$ **or** $(2x)^2 = (2y)^2 + (2z)^2$ **or** $a = \sqrt{b^2 + c^2}$ **or** uses a 3, 4, 5 triangle	May be seen at any stage Where d_A, a, $2x$, etc are their diameters Could be any Pythagorean triple
		M1	for forming correct expressions for the areas of at least 2 of the 3 semicircles, eg at least two of $\frac{1}{2}\pi\left(\frac{a}{2}\right)^2$, $\frac{1}{2}\pi\left(\frac{b}{2}\right)^2$, $\frac{1}{2}\pi\left(\frac{c}{2}\right)^2$ or at least two of $\frac{1}{2}\pi x^2$, $\frac{1}{2}\pi y^2$, $\frac{1}{2}\pi z^2$ or at least two of $\frac{1}{2}\pi\left(\frac{5}{2}\right)^2$, $\frac{1}{2}\pi\left(\frac{3}{2}\right)^2$, $\frac{1}{2}\pi\left(\frac{4}{2}\right)^2$	Where a, b, c are their diameters Where $2x$, $2y$, $2z$ are their diameters Where 3, 4, 5 are their diameters
		C1	for a fully correct and convincing chain of reasoning, eg showing that eg $\frac{1}{2}\pi\left(\frac{a}{2}\right)^2 = \frac{1}{2}\pi\left(\frac{b}{2}\right)^2 + \frac{1}{2}\pi\left(\frac{c}{2}\right)^2$ can be reduced to $a^2 = b^2 + c^2$ **or** that $(2x)^2 = (2y)^2 + (2z)^2$ is the same as $\frac{1}{2}\pi x^2 = \frac{1}{2}\pi y^2 + \frac{1}{2}\pi z^2$	
14 (a)	0.9	M1	for drawing a tangent at $t = 2$	
		M1	for a complete method to find the gradient eg tangent at $t = 2$ and "2.7" ÷ "3"	Use of change in y over change in x Working may be seen on the diagram
		A1	for answer in the range 0.7 to 1.1	Accept answers in the form $\frac{a}{b}$ where a and b are integers
(b)	Statement	C1	eg distance (travelled)	If units are given they must be correct

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 (a)	$\overrightarrow{AC} = 5\overrightarrow{AB}$ and reason	M1	for $\overrightarrow{AC} = 5(3\mathbf{a} + 4\mathbf{b})$ **or** $\overrightarrow{BC} = 4(3\mathbf{a} + 4\mathbf{b})$ or indicates that $15\mathbf{a} + 20\mathbf{b} = 5 \times (3\mathbf{a} + 4\mathbf{b})$	
		C1	for $\overrightarrow{AC} = 5\overrightarrow{AB}$ or $\overrightarrow{AC} = 5(3\mathbf{a} + 4\mathbf{b})$ or $15\mathbf{a} + 20\mathbf{b} = 5(3\mathbf{a} + 4\mathbf{b})$ **and** a correct reason, eg *AC* is a multiple of *AB* / multiples of each other / *AB* is a factor of *AC* **or** they have the same gradient / are parallel / go in the same direction **or** they have a point in common / both start at *A* **or** *AC* is an enlargement of *AB*	Do not award this mark if any incorrect working seen Could use *AB* and *BC* or *AC* and *BC*
(b)	5 : 2	P1	for ($\overrightarrow{DF}$ =) $3\mathbf{e} + 6\mathbf{f} + (-10.5\mathbf{e} - 21\mathbf{f})$ $(= -7.5\mathbf{e} - 15\mathbf{f})$ **or** for a multiplicative relationship for $\overrightarrow{DE}$ and $\overrightarrow{EF}$ eg $\overrightarrow{EF} = -3.5\overrightarrow{DE}$ or for (*DE* : *EF* =) 1 : –3.5 oe	
		P1	for a multiplicative relationship for $\overrightarrow{DF}$ and $\overrightarrow{DE}$ eg $\overrightarrow{DF} = -2.5\overrightarrow{DE}$ **or** for (*DF* : *DE* =) –5 : 2 oe eg –2.5 : 1 or –7.5 : 3 **or** for answer of 2 : 5 oe	
		A1	oe eg 2.5 : 1	

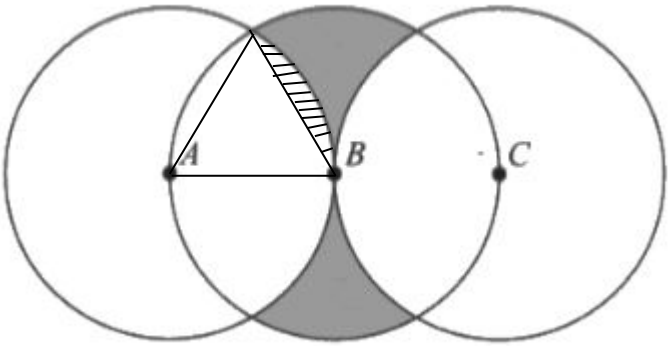
Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16	0.78	P1	for using 0.75 or 0.25 in a relevant product, eg $0.75 \times x$ **or** $0.25 \times y$	Allow different letters Could work with fractions
		P1	for using two products to form an equation, eg $0.75x + 0.25y = 0.36$	
		P1	for a correct equation in one variable, eg $0.75(1 - p) + 0.25p = 0.36$ **or** $0.75f + 0.25(1 - f) = 0.36$	Could set up an equation for pass × pass + fail × fail = 0.64
		A1	oe	Accept 78% or any equivalent fraction, eg $\frac{39}{50}, \frac{156}{200}$
17	$y = \frac{40}{\sqrt{x^3}}$	P1	for setting up an equation with a constant term, eg $y = k\sqrt{t}$ **or** $t = \frac{K}{x^3}$	Condone the use of 'α' instead of '=' for the first two P marks Equation can be implied by correct substitution
		P1	for a process to substitute values in one equation, eg $15 = k\sqrt{9}$ or $k = 5$ **or** $8 = \frac{K}{2^3}$ or $K = 64$	
		P1	(dep P2) for combining the two equations ft their values of k and K, eg $y = 5\sqrt{\frac{64}{x^3}}$ **OR** for $y = 5\sqrt{t}$ **and** $t = \frac{64}{x^3}$	
		A1	oe	Formula must include 40 Accept other forms for the power of x but must be a single term in x

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18	16	M1	for working with square root **or** with reciprocal in $\left(5\frac{4}{9}\right)^{-\frac{1}{2}}$ eg $\left(\frac{9}{49}\right)^{\frac{1}{2}}$ or $\frac{1}{\sqrt{\frac{49}{9}}}$ or $\frac{1}{\left(\frac{49}{9}\right)^{\frac{1}{2}}}$ or $\left(\frac{7}{3}\right)^{-1}$ or $\frac{3}{7}$	
		M1	for a full method to simplify the numerator eg $\frac{3}{7}\times\frac{14}{3}$ (= 2)	
		M1	for showing $\div 2^{-3}$ as $\times 8$, eg $\frac{3}{7}\times\frac{14}{3}\times 8$ **or** for $2^1 \div 2^{-3}$ (= 2^4) **or** for correctly reducing the expression to a single calculation, eg $\frac{336}{21}$ or $\frac{112}{7}$ or $2 \div \frac{1}{8}$	May be seen at any time during the calculation
		A1	cao	Award 0 marks for a correct answer with no supportive working

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19	$\frac{5 \pm \sqrt{15}}{2}$	M1	for using a common denominator eg $\frac{x-1}{(2x-1)(x-1)} + \frac{3(2x-1)}{(2x-1)(x-1)}$ (= 1) **or** $(x-1) + 3(2x-1) = (2x-1)(x-1)$	
		M1	for expanding and rearranging to get $2x^2 - 10x + 5$ (= 0)	Note we don't need to see "= 0"; just the LHS is sufficient Accept other forms of the 3 term quadratic, eg $2x^2 - 10x = -5$
		M1	(dep M1) ft for a method to solve their 3 term quadratic equation eg $\frac{10 \pm \sqrt{(-10)^2 - 4 \times 2 \times 5}}{2 \times 2}$ or $\frac{10 \pm \sqrt{60}}{4}$ **or** $2\left[\left(x - \frac{5}{2}\right)^2 - \left(\frac{5}{2}\right)^2\right] + 5 = 0$ oe	Correct use of formula or completing the square
		A1	cao	

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20	$7x + 5y - 82 = 0$	P1	for process to work out the gradient of the line from the centre of the circle to the point (6,8) eg $\frac{8-3}{6--1}$ $(= \frac{5}{7})$	
		P1	(dep P1) for using $mn = -1$ eg $-1 \div$ "$\frac{5}{7}$" $(= -\frac{7}{5})$	
		P1	for substituting (6, 8) into $y =$ "$-\frac{7}{5}$" $x + c$ **or** for $(y - 8) =$ "$-\frac{7}{5}$"$(x - 6)$ **or** for $y = -\frac{7}{5}x + \frac{82}{5}$ oe	
		A1	$7x + 5y - 82 = 0$ oe SC B2 for answer of $5x + 7y - 86 = 0$ oe in any form	Must be in form $ax + by + c = 0$ with integer coefficients, eg $82 - 7x - 5y = 0$

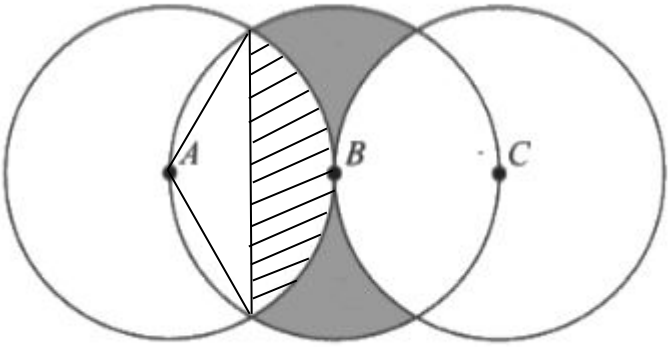
Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21	$16\sqrt{3}-\frac{16\pi}{3}$	P1	for identifying an angle of 60 or 120	
		P1	for process to find the area of a sector of angle 60 or 120 eg $\pi 4^2 \times \frac{60}{360}$ (= $\frac{8\pi}{3}$) or $\pi 4^2 \times \frac{120}{360}$ (= $\frac{16\pi}{3}$)	
		P1	for process to find the area of an equilateral triangle eg $\frac{1}{2} \times 4 \times 4 \times \sin 60$ (= $4\sqrt{3}$) **or** $\frac{4 \times \sqrt{4^2-2^2}}{2}$ (= $2\sqrt{12}$ or $4\sqrt{3}$) **or** the area of an isosceles triangle **or** area of a right-angled triangle eg $\frac{1}{2} \times 4 \times 4 \times \sin 120$ (= $4\sqrt{3}$) **or** $\frac{2 \times \sqrt{4^2-2^2}}{2}$ (= $\sqrt{12}$ or $2\sqrt{3}$)	
		P1	for using area of sector – area of triangle to find area of a segment eg $\pi 4^2 \times \frac{60}{360} - \frac{1}{2} \times 4 \times 4 \times \sin 60$ (= $\frac{8\pi}{3} - 4\sqrt{3}$) **or** $\pi 4^2 \times \frac{120}{360} - \frac{1}{2} \times 4 \times 4 \times \sin 120$ (= $\frac{16\pi}{3} - 4\sqrt{3}$)	
		A1	for $16\pi - 4(\frac{16\pi}{6} - 4\sqrt{3} + \frac{16\pi}{6})$ or $16\sqrt{3} - \frac{16\pi}{3}$ oe	Does not need to be in simplest form



area of segment = area of sector centre A – area of equilateral triangle

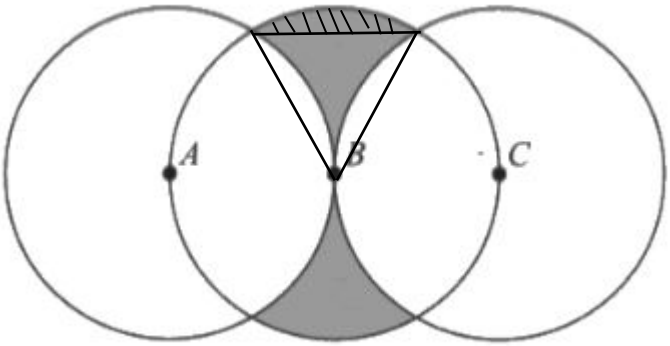
Total shaded area = area of circle – 4 × area of sector – 4 × area of segment

or area of circle – 4 × area of triangle – 8 × area of segment



area of segment = area of sector centre A – area of isosceles triangle

Total shaded area = area of circle – 4 × area of segment



area of segment = area of sector centre B – area of equilateral triangle

Total shaded area = 2 × (area of sector – 2 × area of segment)

or 2 × (area of triangle – area of segment)

Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 1H

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme. Notes apply to both MLP papers and Braille papers unless otherwise stated.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5º
Measurements of length: ±5 mm

PAPER: 1MA1_1H			
Question		**Modification**	**Mark scheme notes**
5		Wording added 'Look at the diagram for Question 5 in the Diagram Booklet. It shows a regular hexagon and a regular pentagon which share a common side.'. Diagram enlarged. The angle moved outside of the angle arc and the angle arc made smaller. For Braille the diagram has hexagon ABCDEF and pentagon GHICB with *x* outside the angle arc. Wording now "The diagram is a regular hexagon, ABCDEF, and a regular pentagon, GHICB, joined at the common side, BC." "In the diagram, angle DCI is marked *x*."	Standard mark scheme
6	(a)	Wording added 'Complete the table below…'. The table turned vertical. Wording added 'There are four spaces to fill.' For Braille Add (i), (ii), (iii) & (iv) in the blank spaces and "Ans: (i) __ (ii) __ (iii) __ (iv) __"	Standard mark scheme
6	(b)	Wording added 'Look at the diagram for Question 6(b) in the Diagram Booklet. It shows a grid.' Diagram enlarged. Open headed arrows. Small squares removed. The axes labels moved to the top of the vertical axis and to the right of the horizontal axis.	Standard mark scheme
7		Wording added 'Look at the diagram for Question 7 in the Diagram Booklet. It shows cube A and cube B.' Wording added 'Cube A has sides of length 3 cm'; 'Cube B has sides of length 4 cm.' Diagram enlarged. The diagrams relabelled as 'cube A' and 'cube B'. Braille: have a model with the words "The models represent two cubes, A and B."	Standard mark scheme
8		Wording added 'Look at the table for Question 8 in the Diagram Booklet. It shows…'. The frequency column widened.	Standard mark scheme

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Question		**Modification**	**Mark scheme notes**
9		Wording added 'Look at the diagram for Question 9 in the Diagram Booklet. You may be provided with a model.' Wording added 'A cube is placed on top of a cuboid, to form a solid, as shown by the diagram and the model.' Diagram enlarged. The dashed lines made longer and thicker.	Standard mark scheme
10	(a)	Wording added 'Look at the table for Question 10 in the Diagram Booklet. It shows…'. The values changed so that the answers can be read on a grid line. 25 changed to 30. 30 changed to 15. 5 changed to 10. 15 changed to 20. Wording added 'Complete the cumulative frequency table below.' 'There are six spaces to fill.'	B1 for 10, 25, 55, 70, 80, 100
10	(b) (c) (d)	Wording added 'Look at the diagram for Question 10(b) in the Diagram Booklet. It shows a grid. Diagram enlarged. Small squares removed. Open headed arrows. Right axis labelled. The axes labels moved to the top of the vertical axis and to the left of the horizontal axis. Intermediates added at intervals of 5 on the *y* axis. The grid cut at 300 on the *x* axis.	(b) Standard mark scheme (c) B1 for answer of 40 **or** ft their graph (if possible) (d) M1 for finding the difference between readings taken from the profit axis at points from a cf of 25 and a cf of 75 ft their graph (if possible) A1 for answer in the range 120 to 130 **or** ft their graph (if possible)
11		Wording added 'Look at the information for Question 11 in the Diagram Booklet.	Standard mark scheme

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Question		**Modification**	**Mark scheme notes**
13		Wording added ‘Look at the diagram for Question 13 in the Diagram Booklet.’ Wording added ‘three semicircular shaded’. Diagram enlarged. The right angle made more obvious. Shading changed. The regions labelled as ‘region A’, ‘region B’ and ‘region C’.	Standard mark scheme
14		Wording added ‘Look at the diagram for Question 14 in the Diagram Booklet. It shows…’. Diagram enlarged. Small squares removed. Open headed arrows. Right axis labelled. The axes labels moved to the top of the vertical axis and to the left of the horizontal axis.	Standard mark scheme with leeway in part (a)
21		Wording added ‘Look at the diagram for Question 21 in the Diagram Booklet. It shows…’. Diagram enlarged. Shading changed. Labels A, B and C moved to the left.	Standard mark scheme

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