GCSE
MATHEMATICS
8300/1H

Higher Tier Paper 1 Non-Calculator

Mark scheme

Shadow paper based on November 2024

Version: 1.0 Final

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
[a, b)	Accept values a $\leqslant$ value < b
3.14…	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles.

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

Questions which ask students to show working

Instructions on marking will be given but usually marks are not awarded to students who show no working.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Continental notation

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the student intended it to be a decimal point.

Q	Answer	Mark	Comments
1	2.5×2.5 or $\left(\frac{5}{2}\right)^2$	M1	oe oe improper fraction squared
	6.25 or $\frac{25}{4}$ or $6\frac{1}{4}$	A1	oe decimal, improper fraction or mixed number SC1 answer digits 625
	Additional Guidance		
	Ignore attempt to simplify or convert if correct fraction seen		
	Do not allow further work but condone adjusting place value eg $2.5 \times 2.5 = 6.25$, $6.25 \div 100 = 0.0625$ (adjusting place value) eg $2.5 \times 2.5 = 2.25$, 6.25×2.5 (cubing not squaring)		M1A0 M0A0
	$2.5 \times 2.5 = 5$		M1A0
	6.25^2 625^2		M1A0 M0A0

Q	Answer	Mark	Comments
2(a)	$\times 5$ and $+4$ or $\div \frac{1}{5}$ and $+4$ or $+0.8$ and $\times 5$ or $+0.8$ and $\div \frac{1}{5}$	B1	oe decimals or fractions must be in correct order operator must be before number condone use of words
	Additional Guidance		
	$+4x$ and $+4$ (oe using the variable)		B0

Q	Answer	Mark	Comments
2(b)	-6	B1	

Q	Answer	Mark	Comments
2(c)	$\times 6$ or $\div \frac{1}{6}$	B1	
	Additional Guidance		
	$+5x$		B0

Q	Answer	Mark	Comments
3	False True True	B3	B2 two correct B1 one correct
	Additional Guidance		
	Accept any indication, but if a tick and crosses are used in the same row, mark the tick		
	A row with more than one tick is incorrect for that row		

Q	Answer	Mark	Comments
4(a)	81	B1	

Q	Answer	Mark	Comments
4(b)	-12 and -9	B2	either order B1 first value -12 or second value -9 or second value = their first value $+3$ SC1 -9 and -21

Q	Answer	Mark	Comments
5(a)	7	B1	

Q	Answer	Mark	Comments
5(b)	2500 ÷ 20 or $\frac{2500}{20}$	M1	oe eg 250 ÷ 2
	125	A1	SC1 digits 125
	Additional Guidance		
	Ignore units		

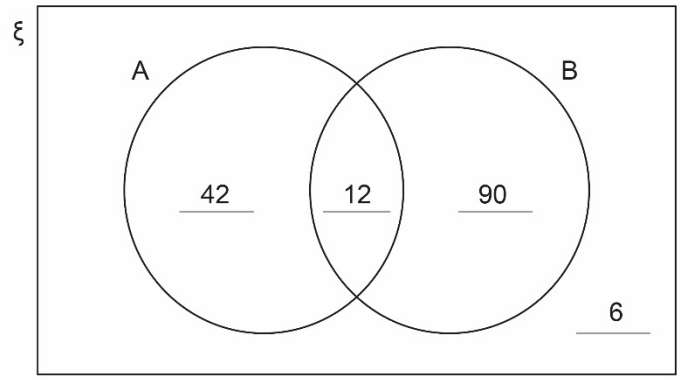
Q	Answer	Mark	Comments
6	Correct conversion of or correct method to convert $1\frac{1}{10}$ to $\frac{22}{20}$ or $1\frac{2}{20}$ with no incorrect conversion of $\frac{3}{20}$ or correct method for or correct result of conversion of both fractions to a common denominator $\neq 20$ or $1-\frac{1}{20}$ or 1.10 – 0.15 or 0.95	M1	
	$\frac{19}{20}$	A1	oe fraction eg $\frac{38}{40}$
	Additional Guidance		
	Ignore incorrect simplifying if correct fraction seen		
	$1\frac{1}{10}$ converted to $1\frac{2}{20}$ and $\frac{3}{20}$ converted to $\frac{6}{20}$		M0

Q	Answer	Mark	Comments
7	15 ÷ 3 or 5	M1	oe may be on the diagram may be seen in a ratio
	π × their 5 × their 5 or 25π or [78.3, 78.6]	M1dep	oe
	π × 15 × 15 or 225π or [706.4, 706.95]	M1	oe
	200π	A1	SC2 200
	Additional Guidance		
	Condone eg π25 for 25π		
	Condone use of $\frac{22}{7}$ or 3.1 or better for π up to M3		
	Answer 200 with 200π in working Answer 200 without 200π in working		M1M1M1A0 SC2
	Answer [627.8, 628.6]		M1M1M1A0

Q	Answer	Mark	Comments
8(a)	10×12 or 120 or $\frac{10}{15} \times 12$ or $12 \div \frac{15}{10}$ or correct time for any stated number of people other than 10	M1	oe eg 24 hours for 5 people
	8	A1	SC1 480 (minutes)
	Additional Guidance		
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	Working may be seen in minutes eg $10 \times 12 \times 60$ or 7200		M1

Q	Answer	Mark	Comments
8(b)	It is less than the answer to (a)	B1	

Q	Answer	Mark	Comments
9	$a = 3$	B1	
	$2 + 3b = 17$ or $3b = 15$	M1	
	$b = 5$	A1	

Q	Answer	Mark	Comments
10	42 in A only	B1	
	12 in intersection	B1	
	90 in B only	B1	
	6 outside circles	B1ft	correct or ft 150 – their 42 – their 12 – their 90
	Additional Guidance		
			4 marks
	If the correct numbers are given as fractions with denominator 150 (oe fraction), only withhold the mark in the first instance		
	If the three values inside the circles sum to 150, award the 4th mark for 0 written outside the circles, but not for no value written		
	If the three values inside the circles sum to more than 150, the 4th mark cannot be awarded on ft		

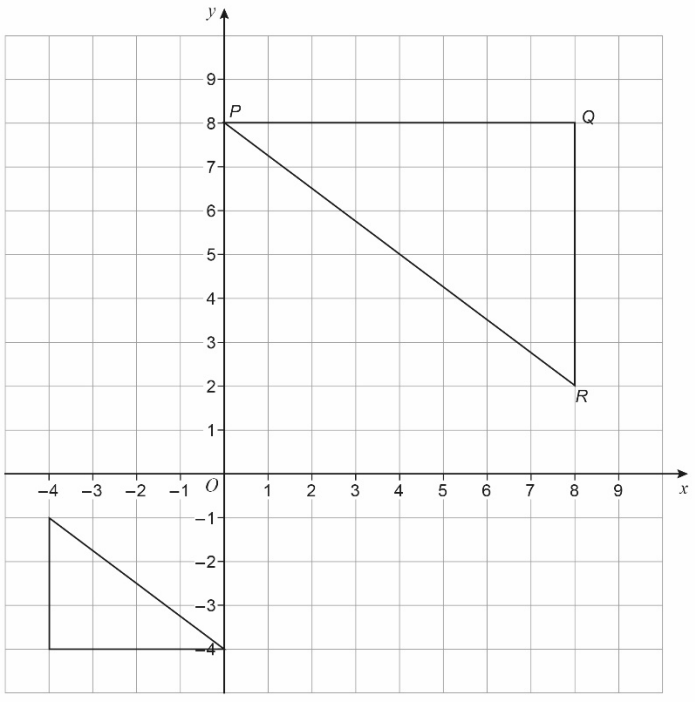
Q	Answer	Mark	Comments
11	Circles or at least semicircular arcs, radius 4 cm, at top and bottom, connected by horizontal lines at both sides	B3	B2 semicircles or at least semicircular arcs, radius 4 cm, at top and bottom B1 semicircle or at least semicircular arc, radius 4 cm, at either top or bottom or correct shape for region with incorrect measurements
	Additional Guidance		
	Condone parts of circles within the region not erased		
	Condone dotted lines used for (part of) the perimeter		
	All accuracy is $\pm$ 2 mm		

Q	Answer	Mark	Comments
12(a)	Division of 39 by 11 seen with correct evaluation to least 3.5 or division of 6 by 11 seen with correct evaluation to least (0).5 or 3.54…	M1	eg $11\overline{)39.0000}$ 3.5
	$3.\dot{5}\dot{4}$ or $3.\overline{54}$	A1	condone 3.5454..
	Additional Guidance		
	If the answer is given as 3.5454… there must be at least four digits after the decimal point and at least two dots eg 3.545454.. eg 3.5454		 M1A1 M1A0

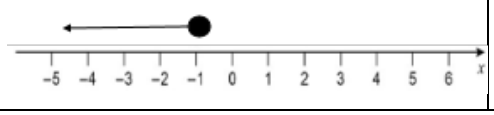
Q	Answer	Mark	Comments
12(b)	**Alternative method 1: using $x = 0.355\ldots$**		
	Multiplication by a power of 10 with correct result	M1	eg $10x = 3.55\ldots$ or $100x = 35.55\ldots$ or $1000x = 355.55\ldots$ any or no letter
	Correct equation formed from subtraction of two equations to eliminate recurring digits or correct fraction with a decimal numerator	M1dep	eg $9x = 3.2$ or $90x = 32$ or $99x = 35.2$ eg $\frac{35.2}{99}$
	$\frac{16}{45}$	A1	oe fraction eg $\frac{32}{90}$ or $\frac{352}{990}$
	Alternative method 2: using $x = 0.055\ldots$		
	Correct equation formed from subtraction of two equations to eliminate recurring digits or correct fraction, which may include a decimal numerator	M1	eg $9x = 0.5$ or $90x = 5$ or $99x = 5.5$ eg $\frac{55}{990}$ or $\frac{5.5}{99}$
	$\frac{3}{10}$ + their correct fraction, which may include a decimal numerator	M1dep	eg $\frac{3}{10} + \frac{5}{90}$
	$\frac{16}{45}$	A1	oe fraction eg $\frac{32}{90}$ or $\frac{352}{990}$
	Additional Guidance		
	Up to M2 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore incorrect simplifying if correct fraction seen		
	Unless recovered, recurring decimals must be in correct notation or denoted by at least two repeated digits after the decimal point with at least two dots		

Q	Answer	Mark	Comments
13(a)	$\sqrt{900}$ or 30 or 4^3 or 64 or sin 30° or 0.5	M1	oe
	30 and 64 and 0.5	M1	
	188 with correct values	A1	
	Additional Guidance		
	188 seen then rounded to 190		M1M1A1
	94 rounded to 90 then $\frac{90}{0.5}$ leading to 180 as final answer		M1M1A0

Q	Answer	Mark	Comments
13(b)	Any two of 7^2 is not 14 $9 + 14 - 42 \cos x$ is not $-19 \cos x$ $25 = -19 \cos x$ does not solve to $\cos x = -\frac{19}{25}$ (numerator and denominator are inverted)	B2	oe B1 any one error identified SC1 answer should be $\cos x = \frac{33}{42}$ oe or answer should be $\cos x = -\frac{33}{42}$ oe
	Additional Guidance		
	All three errors identified		B2
	Three errors identified with one or two correct		B1
	7^2 should be 49		B1
	You have to rearrange (to make $\cos x$ the subject)		B0

Q	Answer	Mark	Comments
14	Triangle with vertices (–4, –1) and (–4, –4) and (0, –4)	B3	B2 triangle of correct size and orientation but incorrect position or correct vertices plotted but no triangle drawn or any negative enlargement with centre (0, 0) B1 triangle of correct size but incorrect orientation or two correct vertices plotted or any negative enlargement with centre not (0, 0)
	Additional Guidance		
	Mark intention		
	Ignore labelling of vertices on enlarged triangle		
			B3

Q	Answer	Mark	Comments
15(a)	Correct rearrangement with $-5x$ the subject or $5x$ positive or correct division throughout by 5	M1	eg $-5x \leqslant 50 - 30$ or $-5x \leqslant 20$ or $30 \leqslant 50 + 5x$ or $30 - 50 \leqslant 5x$ or $-20 \leqslant 5x$ or $6 - x \leqslant 10$
	Correct rearrangement with $-x$ the subject or x positive	M1dep	eg $-x \leqslant 20 \div 5$ or $-x \leqslant 4$ or $20 \div 5 \geqslant -x$ or $4 \geqslant -x$ or $x \geqslant 20 \div -5$ or $x \geqslant -\frac{20}{5}$ or $-20 \div 5 \leqslant x$ or $-\frac{20}{5} \leqslant x$ or $6 \leqslant 10 + x$
	$x \geqslant -4$ or $-4 \leqslant x$	A1	SC1 for answer -4, which may be seen in an equation or incorrect inequality
	Additional Guidance		
	Allow incorrect signs in working if recovered in final answer		
	Allow $<$ for $\leqslant$ or $>$ for $\geqslant$ for method marks		
	Unless recovered, use of $=$ scores maximum SC1		

Q	Answer	Mark	Comments
15(b)	Filled circle at -1 with an arrow to the left 	B1	mark intention circle and arrow can be above, on or below the line

Q	Answer	Mark	Comments
16	Valid reason	B1	see examples below
	$7 \leqslant w < 8$	B1	condone $7.\dot{9}$ for 8
	Additional Guidance		
	Reasons		
	These are the bounds for rounding to 7		B1
	This is the error interval for the nearest whole number		B1
	The number must begin with 7 for it to truncate to 7		B1
	The number cannot be less than 7		B1
	When a number is truncated it gets smaller		B1
	w is being made lower, not higher		B1
	When a number is truncated the decimals are removed		B1
	The values have to be whole numbers/the bounds shouldn't be decimals (with no decimals in their bounds)		B1
	6.5 would truncate to 6		B1
	6.5 is wrong with 7 given as the correct lower bound or 7.5 is wrong with 8 given as the correct upper bound		B1
	6.5 is wrong or 7.5 is wrong without the appropriate correct bound		B0

Q	Answer	Mark	Comments
17(a)	$(r =)\ 64\pi \div 2\pi$ or $(r =)\ 64 \div 2$ or $(r =)\ 32$ or $(64\pi \div 2\pi)^2$ or $(64 \div 2)^2$ or 32^2 or 1024	M1	
	$x^2 + y^2 = 32^2$ or $x^2 + y^2 = 1024$	A1	
	Additional Guidance		
	$x^2 + y^2 = 32$ or $a^2 + b^2 = 32$		M1A0
	$a^2 + b^2 = 32^2$ or $a^2 + b^2 = 1024$		M1A0
	Allow $x^2 + y^2 = 32^2$ followed by an incorrect evaluation of 32^2 eg $x^2 + y^2 = 32^2$, $32 \times 32 = 904$, $x^2 + y^2 = 904$		M1A1

Q	Answer	Mark	Comments
17(b)	**Alternative method 1: uses the gradient with either point to work out the intercept**		
	$\frac{0-(-5)}{15-40}$ or $-\frac{1}{5}$	M1	oe
	their $-\frac{1}{5} \times 15 + c = 0$ or their $-\frac{1}{5} \times 40 + c = -5$	M1dep	oe
	$(m =) -\frac{1}{5}$ and $(c =) 0 + \frac{1}{5} \times 15$ or $(m =) -\frac{1}{5}$ and $(c =) -5 + \frac{1}{5} \times 40$ or $(m =) -\frac{1}{5}$ and $(c =) 3$	M1dep	oe equation in c or expression for c
	$y = -\frac{1}{5}x + 3$ or $x + 5y - 15 = 0$	A1	oe equation with terms collected
	Alternative method 2: uses the gradient with $y - y_1 = m(x - x_1)$		
	$\frac{0-(-5)}{15-40}$ or $-\frac{1}{5}$	M1	oe
	$y - 0 =$ their $-\frac{1}{5}(x - 15)$ or $y - (-5) =$ their $-\frac{1}{5}(x - 40)$	M1dep	oe
	$y = -\frac{1}{5}x + 3$ or $x + 5y - 15 = 0$	A2	oe equation with terms collected A1 $(m =) -\frac{1}{5}$ and $(c =) 3$

Question 17(b) continues on the next page

17b cont	**Alternative method 3: finds gradient and y-intercept separately**		
	$\frac{0-(-5)}{15-40}$ or $-\frac{1}{5}$	M1	oe
	(y-intercept $=$) (0, 3) or $c = 3$	M1	
	$y = -\frac{1}{5}x + 3$ or $x + 5y - 15 = 0$	A2	oe equation with terms collected A1 $(m =) -\frac{1}{5}$ and $(c =) 3$
	Alternative method 4: simultaneous equations using both points		
	Correct elimination of one variable	M1	eg $0 = 15m + c$ and $-5 = 40m + c$ and $15m - 40m = 0-(-5)$ or $-25m = 5$ or $m = -\frac{1}{5}$
	Correct substitution into a correct equation	M1dep	eg $0 = 15 \times -\frac{1}{5} + c$
	$y = -\frac{1}{5}x + 3$ or $x + 5y - 15 = 0$	A2	oe equation with terms collected A1 $(m =) -\frac{1}{5}$ and $(c =) 3$
	Additional Guidance		
	Allow an equivalent fraction for $-\frac{1}{5}$ throughout		
	As a decimal, allow -0.2 for $-\frac{1}{5}$ for the method marks		
	In alts 1 and 2, do not allow use of the negative inverse of their gradient		M1 max

Q	Answer	Mark	Comments
18(a)	$(x + 3)^2 - 14$	B2	condone $a = 3$ and $b = 14$ B1 $(x + 3)^2$ … or $a = 3$
	Additional Guidance		
	Ignore further work after a correct answer eg $(x + 3)^2 - 14$ followed by $a = 3$ and $b = -14$		B2

Q	Answer	Mark	Comments
18(b)	(9, 6)	B2	B1 for each coordinate
	Additional Guidance		

Q	Answer	Mark	Comments
19(a)	**Alternative method 1: multiplies $(x + 3)(2x + 4)$ first**		
	$2x^2 + 6x + 4x + 12$ or $2x^2 + 10x + 12$	M1	oe four terms with at least three correct implied by $2x^2 + 10x + k$ or $px^2 + 10x + 12$ where k and p are a non-zero constants may be seen in a grid
	$6x^3 + 18x^2 + 12x^2 + 36x + 10x^2 + 30x + 20x + 60$ or $6x^3 + 30x^2 + 36x + 10x^2 + 50x + 60$	M1dep	oe full expansion with correct multiplication of their 3 or 4 terms by $3x$ or 5 may be seen in a grid
	$6x^3 + 40x^2 + 86x + 60$	A1	
	Alternative method 2: multiplies $(2x + 4)(3x + 5)$ first		
	$6x^2 + 12x + 10x + 20$ or $6x^2 + 22x + 20$	M1	oe four terms with at least three correct implied by $6x^2 + 22x + k$ or $px^2 + 22x + 20$ where k and p are non-zero constants may be seen in a grid
	$6x^3 + 12x^2 + 10x^2 + 20x + 18x^2 + 36x + 30x + 60$ or $6x^3 + 22x^2 + 20x + 18x^2 + 66x + 60$	M1dep	oe full expansion with correct multiplication of their 3 or 4 terms by x or 3 may be seen in a grid
	$6x^3 + 40x^2 + 86x + 60$	A1	

Question 19(a) continues on the next page

19(a) cont	**Alternative method 3: multiplies $(x + 3)(3x + 5)$ first**			
	$3x^2 + 9x + 5x + 15$ or $3x^2 + 14x + 15$	M1	oe four terms with at least three correct implied by $3x^2 + 14x + k$ or $px^2 + 14x + 15$ where k and p are non-zero constants may be seen in a grid	
	$6x^3 + 18x^2 + 10x^2 + 30x + 12x^2 + 36x + 20x + 60$ or $6x^3 + 28x^2 + 30x + 12x^2 + 56x + 60$	M1dep	oe full expansion with correct multiplication of their 3 or 4 terms by $2x$ or 3 may be seen in a grid	
	$6x^3 + 40x^2 + 86x + 60$	A1		
	Additional Guidance			
	M1 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts			
	Terms may be in any order throughout			
	For method marks, terms may be given in a table, with minus signs shown where necessary			
	2nd M1 A full expansion will be 8 terms if 4 terms are used in first expansion A full expansion will be 6 terms if 3 terms are used in first expansion			
	1st M1 scored with a 4-term expansion followed by incorrect simplification to 3 terms can still score the 2nd M1 using their 3 terms eg $2x^2 + 6x + 4x + 12 = 2x^2 + 9x + 12$ ($9x$ should be $10x$) $(2x^2 + 9x + 12)(3x + 5) = 6x^3 + 27x^2 + 36x + 10x^2 + 45x + 60$			M1 M1

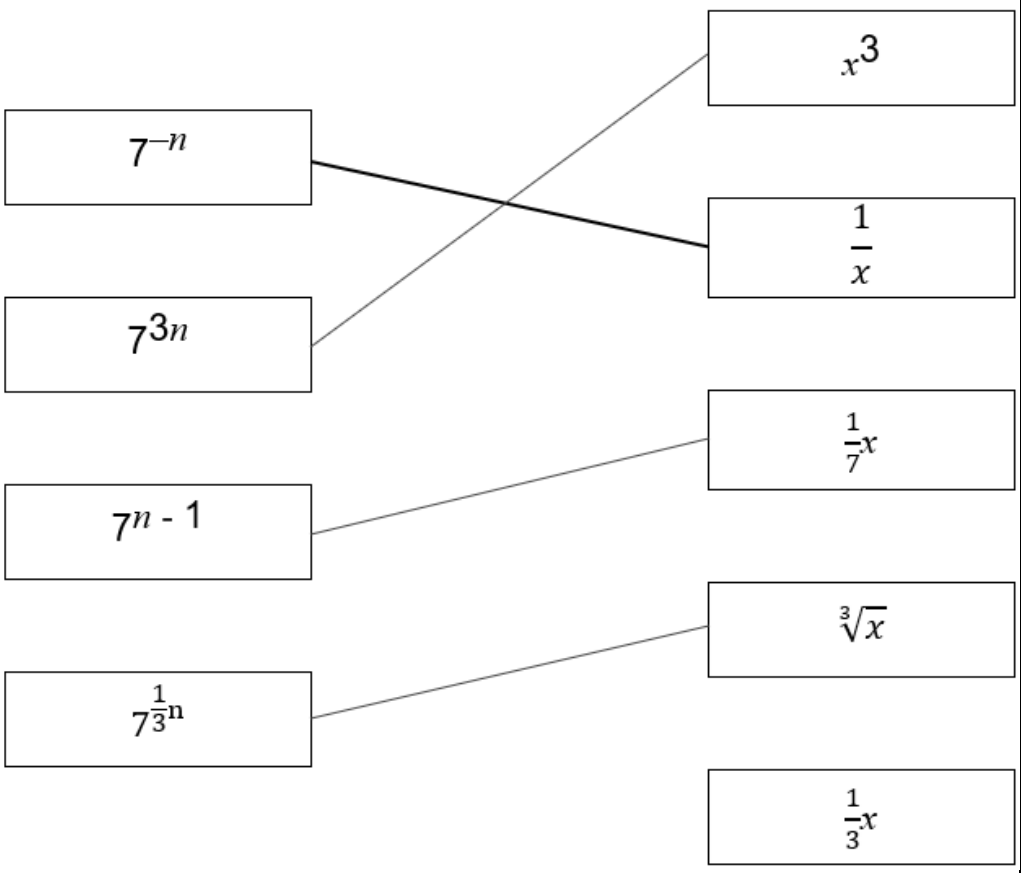
Q	Answer	Mark	Comments
19(b)	Substitution of $x = 100$ into their cubic expansion of at least three terms	M1	eg with part (a) correct, $6 \times 100^3 + 40 \times 100^2 + 86 \times 100 + 60$ or $6\,000\,000 + 400\,000 + 8600 + 60$
	6 408 660	A1ft	ft their cubic expansion, which must contain at least 3 terms
	Additional Guidance		
	Ignore any rounding or truncation after correct answer seen		
	6 408 660 from long multiplication		M1A1

Q	Answer	Mark	Comments
20(a)	$\frac{\sqrt{144}\sqrt{3}}{\sqrt{3}}$ or $\frac{12\sqrt{3}}{\sqrt{3}}$ or $\sqrt{144}$ or $\frac{\sqrt{432}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}}$ or $\frac{\sqrt{432}\sqrt{3}}{3}$ or $\frac{12\sqrt{3}\sqrt{3}}{3}$ or $\frac{\sqrt{1296}}{3}$	M1	oe with at least partial simplification of the numerator oe with correct method to rationalise the denominator rationalised
	12 and $\frac{\sqrt{144}\sqrt{3}}{\sqrt{3}}$ or $\frac{12\sqrt{3}}{\sqrt{3}}$ or $\sqrt{144}$ **or** 12 and $\frac{12\sqrt{3}\sqrt{3}}{3}$ or $\frac{\sqrt{1296}}{3}$	A1	
	Additional Guidance		
	For M1, allow multiplication or division by $\sqrt{1}$ throughout		

Q	Answer	Mark	Comments
20(b)	Correct expression with rationalisation of denominator seen or used	M1	eg $\frac{30}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}}$ or $\frac{30\sqrt{5}}{5}$ or $\frac{6\times\sqrt{5}\times\sqrt{5}}{\sqrt{5}}$ or $\frac{6\sqrt{5}}{1}$
	$6\sqrt{5}$	A1	

Q	Answer	Mark	Comments
21(a)	264.29	B1	

Q	Answer	Mark	Comments
21(b)	180 – 84.29 or 95.71 or 360 – 84.29 or 275.71	M1	oe
	95.71 and 275.71	A1	either order
	Additional Guidance		
	–84.29, 95.71 and 275.71		M1A0

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comments</th></tr>
<tr><td rowspan="4">22</td><td>$7^{3n} \rightarrow x^3$
$7^{n-1} \rightarrow \frac{1}{7}x$
$7^{\frac{1}{3}n} \rightarrow \sqrt[3]{x}$</td><td>B3</td><td>B1 each correct match</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2"> 
</td><td>B3</td></tr>
<tr><td colspan="2">Two lines from a box on the left is incorrect for that box</td><td></td></tr>
</table>

Q	Answer	Mark	Comments
23(a)	$y = x^2 + 1$	B1	oe equation eg $y - 1 = x^2$
	Additional Guidance		
	In (a), (b) and (c), on otherwise correct answers only withhold the mark for the first missing $y =$		

Q	Answer	Mark	Comments
23(b)	$y = (-x)^2$	B1	oe equation eg $y - (-x)^2 = 0$
	Additional Guidance		
	In (a), (b) and (c), on otherwise correct answers only withhold the mark for the first missing $y =$		

Q	Answer	Mark	Comments
23(c)	$y = (x + 3)^2 + 1$	B1	oe equation eg $y = x^2 + 6x + 10$
	Additional Guidance		
	In (a), (b) and (c), on otherwise correct answers only withhold the mark for the first missing $y =$		
	Ignore an incorrect expansion after the correct equation is seen		B1