AQA

GCSE MATHEMATICS

8300/1H

Paper 1 Non-calculator

Higher tier

Shadow paper based on June 2024 question paper

Mark scheme

Version: 1.0

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. e.g. 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 e.g. 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	$(6^2 =)$ 36 or $\sqrt{81} = 9$ or $\frac{1}{3} \times \sqrt{81} = 3$	M1	Implied by correct answer accept ±9 or ±3
	$(6^2 =)$ 36 and $\frac{1}{3} \times \sqrt{81} = 3$	M1dep	Implied by correct answer
	12	A1	accept ±12

Additional Guidance		
Condone missing brackets if recovered e.g. $6^{2÷}\frac{1}{3} \times 9$ with answer 12		M1M1A0
$\dfrac{36}{\frac{1}{3} \times 9}$ with no further correct work		M1M1A1
Using a decimal for $\dfrac{1}{3}$ must be recovered		

Q	Answer	Mark	Comments
2	[48,52]	B1	

Q	Answer	Mark	Comments
3	$\begin{pmatrix} -2 \\ 8 \end{pmatrix}$	B1	

	Additional Guidance		
	Condone + sign and/or fraction line		B1
	(-2,8)		B0

Q	Answer	Mark	Comments
4(a)	5750	B1	

Q	Answer	Mark	Comments
4(b)	5849	B1	

Q	Answer	Mark	Comments
5(a)		B3	B2 two or three correct numbers in correct positions B1 one correct number in correct position

	Additional Guidance		
	Only mark the numbers in the diagram		

Q	Answer	Mark	Comments
5(b)	Should be $\frac{6}{27}$ or $\frac{2}{9}$	B1ft	oe fraction, decimal or percentage correct or ft their diagram

	Additional Guidance	
Answer as ratio with or without $\frac{6}{27}$ seen		B0
Answer in words with $\frac{6}{27}$ seen		B1
Answer in words without $\frac{6}{27}$ seen		B0
$\frac{6}{27}$ seen with incorrect conversion to decimal or percentage		B1
Ignore any attempt to simplify or convert their $\frac{6}{27}$		B1ft

Q	Answer	Mark	Comments
6(a)	At least 3 points correctly plotted	M1	$\pm\dfrac{1}{2}$ square
	All 4 points correctly plotted and joined with straight lines	A1	$\pm\dfrac{1}{2}$ square lines may be dashed

	Additional Guidance	
Mark intention for straight lines		
Condone one continuous, smooth curve		
Ignore the graph before 2016 and after 2023		
Ignore a line of best fit		

Q	Answer	Mark	Comments
6(b)	[84, 92]	B1	

	Additional Guidance	
Answer in the range with or without working, with no graph or incorrect graph		B1

Q	Answer	Mark	Comments
7(a)	Correct statement	B1	e.g. she used the height instead of the slant height or she used the vertical height or she used 8 (instead of 10)

Additional Guidance	
Check diagram	
For 'vertical' accept anything that implies she has used the wrong height	
Condone 'length' to mean 'height' or 'slant height'	
8 or 10 circled in the diagram must be accompanied by a supporting statement	
Indicates '8' in the calculation'	B1
She should have done $\pi \times 6 \times 10$	B1
It should be 60π	B1
She used the wrong height/the (value of) l is wrong	B1
She hasn't used the slant height (she used the (vertical) height)	B1
She hasn't used the 10	B1
She hasn't used the 10 and should be $6 \times 8 \times 10 \times \pi$	B0
The multiplication used the wrong number(s)	B0
She hasn't used a value for π	B0
An incorrect statement with a correct statement e.g. she used 8 instead of 10 and didn't square the radius	B0

Q	Answer	Mark	Comments
7(b)	$\pi \times 6 \times 6$ or 36π or $3 \times 6 \times 6$	M1	oe accept [3.14, 3.142] or $\dfrac{22}{7}$ for π
	108	A1	

	Additional Guidance	
	$\pi36$	M1

Q	Answer	Mark	Comments
7(c)	'More than' indicated or implied by statement and valid reason	B1	e.g. valid reasons 3.14 is greater (than 3) Belinda's number is bigger (than Adrian's) (the correct answer is) 113.04 (with their answer to (b) less than 113.04)

	Additional Guidance	
	If calculations are used, the outcomes must be correct	
	Accept 113 unless from incorrect working	
	'Less than' indicated	B0
	Do not penalise use of the same incorrect formula in (b) and (c) e.g. $3 \times 12 = 36$ in (b) and $3.14 \times 12 = 37.68$ in (c) with 'More than' ticked	B1
	Ignore a non-contradictory reason with a correct reason e.g. 3.14 is bigger than 3 and nearer the true value of pi	B1
	Acceptable reasons	
	Adrian has rounded (pi) down/Adrian only used 3	B1
	There is an extra 0.14 to multiply by	B1
	Her number has decimal places	B1
	Her number is to more significant figures	B1
	Non-acceptable reasons	
	3.14 will give a bigger answer/3.14 is more accurate	B0

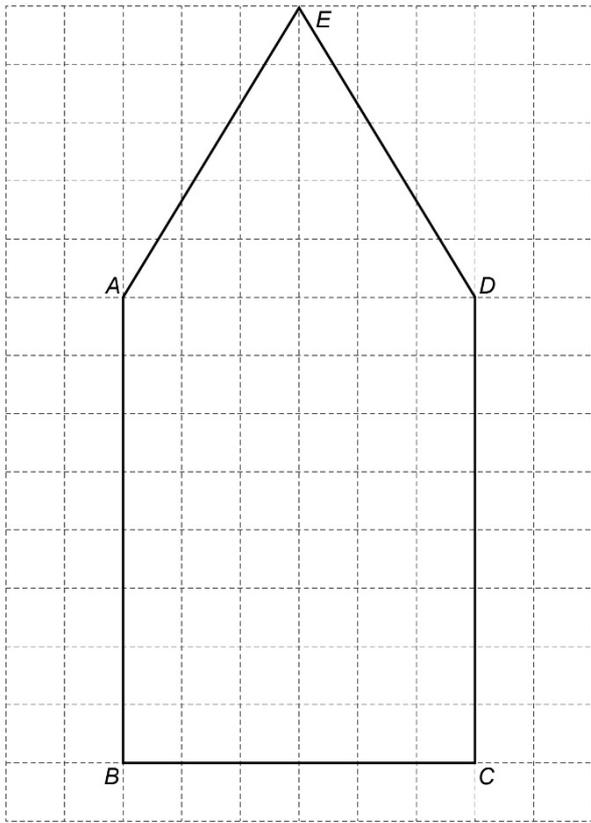| Q	Answer	Mark	Comments
8	$8x - 4x$ or $4x$ or $4x - 8x$ or $-4x$ or $-19 - 29$ or -48 or $19 + 29$ or 48	M1	
	$4x = 48$ or $-4x = -48$	A1	$\dfrac{48}{4}$ or $\dfrac{-48}{-4}$ implies M1A1 Implied by correct answer
	12	A1ft	ft M1A0 from an equation of the form $\pm 4x = a$ or $bx = \pm 48$
	Additional Guidance		
	Trial and improvement scores 0 or 3		
	If a follow through number does not simplify to an integer, accept it as a fraction, mixed number or decimal to at least 1dp. e.g. from $4x = 47$ accept $\dfrac{47}{4}$ or $11\dfrac{47}{4}$ or 11.75 Ignore any attempt to convert a correct ft fraction	M1A0A1ft
	Embedded answer	M1A1A0

Q	Answer	Mark	Comments
9	$\dfrac{38(.0)}{17.2}$	M1	oe e.g. $\dfrac{19}{8.6}$ or $\dfrac{3.6}{17.2}$
	$\dfrac{380}{172}$ or $2\dfrac{36}{172}$	A1	oe with no decimals e.g. $\dfrac{190}{86}$ or $\dfrac{3800}{1720}$ implied by correct answer
	$\dfrac{95}{43}$ or $2\dfrac{9}{43}$	B1ft	SC2 $\dfrac{43}{95}$ SC1 $\dfrac{95}{138}$ (total area as denominator)

	Additional Guidance	
	Ignore units	
	Ignore an incorrect conversion of $\dfrac{95}{43}$ to a mixed number	M1A1B1
	$\dfrac{38.(0)}{17.2} = \dfrac{3800}{172} = \dfrac{950}{43}$	M1A0B1ft

Q	Answer	Mark	Comments
10(a)	Line joining open circles above, on or below −3 and 1	B1	condone arrows on a correct line with open circles

	Additional Guidance	
	Mark intention	
	If the student has drawn the circles on the line, they must have drawn their own line connecting the circles	
	Closed circle(s)	B0

Q	Answer	Mark	Comments
10(b)	$4y \geqslant 5 - 10$ or $4y \geqslant -5$ or $10 - 5 \geqslant -4y$ or $5 \geqslant -4y$ or $y + \dfrac{10}{4} \geqslant \dfrac{5}{4}$ or $-\dfrac{5}{4}$	M1	oe fractions or decimals may be seen in an equation or inequality
	$y \geqslant -\dfrac{5}{4}$ or $-\dfrac{5}{4} \leqslant y$	A1	oe fraction or decimal for $-\dfrac{5}{4}$
	Additional Guidance		
	Allow use of other inequality signs or $=$ if recovered		
	Accept any letter for y		
	Condone $\dfrac{-5}{4}$ or $\dfrac{5}{-4}$ for $-\dfrac{5}{4}$		
	Ignore any attempt to convert $-\dfrac{5}{4}$ to a decimal		
	$y \geqslant -\dfrac{5}{4}$ in working and $-\dfrac{5}{4}$ on answer line		M1A0

Q	Answer	Mark	Comments
11	Enlarge(ment)	B1	
	$\dfrac{1}{3}$	B1	oe condone third
	(5,1)	B1	condone missing bracket(s)
	Additional Guidance		
	Multiple transformations stated or implied		B0B0B0

Q	Answer	Mark	Comments
12	2 x 18 x π or 36π or $\dfrac{40}{360}$ or division by 9	M1	oe accept [3.14, 3.142] or $\dfrac{22}{7}$ for π accept use of 0.11 or better for $\dfrac{1}{9}$
	$\dfrac{40}{360}$ x 2 x 18 x π	M1dep	oe e.g. $\dfrac{36\pi}{9}$
	4π	A1	Condone π4
	Additional Guidance		
	Answer 36π from $\pi \times 18^2 \times \dfrac{40}{360}$ scores M1 for $\dfrac{40}{360}$		M1M0A0

Q	Answer	Mark	Comments
13	Fully correct diagram with all these 6 conditions met • Line length 6 cm from *B* • Line perpendicular to *AB* from *B* • Line length 8 cm parallel to *AB* • Area of pentagon = 63 cm^2 • Pentagon has exactly one line of symmetry • Labelled pentagon	B4	B3 5 conditions met B2 4 conditions met B1 3 conditions met condone label E missing

Additional Guidance	
Mark intention	
Ignore any lines inside the shape e.g. lines of symmetry	
A diagram that is not a pentagon can only meet the first 3 conditions	B0 or B1
	B4

Q	Answer	Mark	Comments
14	**Alternative method 1: elimination**		
	at least one correct equation	M1	e.g. $7x + 2y = 10(.00)$ or $6x + 4y = 9.6(0)$ oe may work in pounds or pence any letters
	correctly multiplies one or two correct equations to equate coefficients of x or y	M1dep	e.g. $14x + 4y = 20(.00)$ and $6x + 4y = 9.6(0)$ or $42x + 12y = 60(.00)$ and $42x + 28y = 67.2(0)$
	correctly adds or subtracts correct equations to eliminate one variable	M1dep	e.g. $8x = 10.4(0)$ or $16y = 7.2(0)$ may be implied by one correct value of x or y with M2 scored
	Cup of tea £1.30 and packet of biscuits £0.45 or cup of tea 130p and packet of biscuits 45p	A1	correct money notation condone £1.30p and £0.45p

Question 14 continues on the next page

Q	Answer	Mark	Comments
	Alternative method 2: substitution		
	$7x + 2y = 10(.00)$ or $6x + 4y = 9.6(0)$ or $14x + 4y = 20(.00)$ or $13x + 6y = 19.6(0)$	M1	oe may work in pounds or pence any letter
14 cont.	correctly makes x or y the subject of a correct equation	M1dep	e.g. $x = \dfrac{10(.00) - 2y}{7}$ or $x = \dfrac{9.6(0) - 4y}{6}$ or $y = \dfrac{10(.00) - 7x}{2}$ or $y = \dfrac{9.6(0) - 6x}{4}$
	correctly substitutes to eliminate a variable	M1dep	may be implied by one correct value of x or y with M2 scored
	Cup of tea £1.30 and packet of biscuits £0.45 or cup of tea 130p and packet of biscuits 45p	A1	correct money notation condone £1.30p and £0.45p

Additional Guidance	
Up to M3 may be awarded for correct work with no answer or incorrect	
answer if this is seen amongst multiple attempts	
Condone multiple letters in equations e.g. *ct* for *x*	
Trial and improvement is 0, 3 (incorrect money notation) or 4 (fully correct)	
Final answer cup of tea £1.3 and packet of biscuits £0.45	M3A0
Final answer cup of tea £1.30 or 130p and packet of biscuits 0.45p	M3A0

Q	Answer	Mark	Comments
15(a)	7.4 to 7.6	B1	

Q	Answer	Mark	Comments
15(b)	$(\sqrt{97} =)\sqrt{100}$ or 10 or $(2.014^3=)$ 2^3 or 8 or $(0.49 =)$ 0.5 or $\dfrac{1}{2}$	M1	
	$(\sqrt{97} =)\sqrt{100}$ or 10 and $(2.014^3=)$ 2^3 or 8 and $(0.49 =)$ 0.5 or $\dfrac{1}{2}$	A1	
	36	A1	

Q	Answer	Mark	Comments
	A correct comparison of the average time of the two races	B1	e.g. the average (time) in 2023 was longer/slower the median (time) in 2022 was lower/faster (so the average was lower/faster)
	A correct comparison of the consistency of the times of the two races	B1	e.g. the 2023 race has more consistent times the interquartile range of the 2022 times was higher, so they were less consistent

Additional Guidance

Statements must be comparisons e.g.1 (the average time in) 2022 was higher e.g.2 (average time in) 2022 was high	B1 B0
Statements reversed	B0
Do not allow incorrect values supporting statements	
Ignore non-contradictory statements with correct statements	
Average time statements	
The 2022 time are (1.5 minutes) quicker (on average)	B1
2023 racers are (1.5 minutes) slower (on average)	B1
Average time has 1.5 minutes difference	B0
Consistency statements	
2023 is more consistent/has better consistency	B1
There is a smaller (interquartile) range for 2023, so it's more consistent	B1
Times of 2023 are closer together	B1
Consistency in 2023 is bigger	B1
Consistency in 2023 is smaller	B0
The difference in interquartile range is 2	B0
2022 had a higher (interquartile) range	B0
2022 a higher range of times	B0

(Q **16** applies to all rows above)

Q	Answer	Mark	Comments
	Alternative method 1:multiples by x first		
	$2xy = 4x - 5$	M1	allow yx for xy throughout
	$2xy - 4x = -5$ or $4x - 2xy = 5$	M1dep	oe collection of terms
	$x(2y - 4) = -5$ or $x(4 - 2y) = 5$ or $\dfrac{-5}{2y - 4}$ or $\dfrac{5}{4 - 2y}$	M1dep	
	$x = \dfrac{-5}{2y - 4}$ or $x = \dfrac{5}{4 - 2y}$		oe in the form $x =$ may have brackets on the denominator
17	**Alternative method 2: splits up the fraction first**		
	$y = 2 - \dfrac{5}{2x}$ or $y + \dfrac{5}{2x} = 2$	M1	allow $\dfrac{4xx}{2xx}$ for 2
	$y - 2 = \dfrac{-5}{2x}$ or $2 - y = \dfrac{5}{2x}$	M1dep	
	$\dfrac{1}{y - 2} = \dfrac{-2x}{5}$ or $2x(y - 2) = -5$ or $2x(2 - y) = 5$ or $\dfrac{-5}{2(y - 2)}$ or $\dfrac{5}{2(2 - y)}$	M1dep	
	$x = \dfrac{-5}{2(y - 2)}$ or $x = \dfrac{5}{2(2 - y)}$	A1	oe in the form $x =$ may have brackets on the denominator

Additional guidance for this question is on the next page

17 cont.	**Additional Guidance**	
	Up to M2 may be awarded for correct work with no answer or incorrect answer if this is seen amongst multiple attempts	
	$\dfrac{-5}{2y-4)}$ on answer line with $x = \dfrac{-5}{2y-4)}$ in working	M3A1
	Allow the equation with x on the right e.g. $\dfrac{-5}{2y-4)} = x$	M3A1
	Condone $x = -5/2y - 4$ if not from incorrect working	M3A1
	Allow appropriate × or ÷ signs throughout for up to M3	

Q	Answer	Mark	Comments
18	$x^2 + y^2 = 4^2$ or $x^2 + y^2 = 16$	B1	oe equation
	Additional Guidance		
	$x^2 + y^2 = 4^2$ followed by an incorrect evaluation of 4^2		B1
	Condone $x^2 + y^2 = r^2$ and $r = 4$		B1

Q	Answer	Mark	Comments
	Alternative method 1: expressing C in terms of A		
19	$(C =) \dfrac{7}{2} A$	M1	oe e.g. $(C =) A + 2.5A$ or $(C=) 3.5A$
	$\left(\dfrac{C}{B} =\right) \dfrac{\frac{7}{2} A}{\frac{5}{4} A}$	M1dep	oe fraction with A on numerator or denominator e.g. $\left(\dfrac{C}{B} =\right) \dfrac{3.5A}{1.25A}$ or $\dfrac{7}{2} A \div \dfrac{5}{4} A$
	$\left(\dfrac{C}{B} =\right) \dfrac{\frac{7}{2}}{\frac{5}{4}}$ or $10C = 28B$	M1dep	oe fraction with A eliminated e.g. $\left(\dfrac{C}{B} =\right) \dfrac{3.5}{1.25}$ oe method to eliminate A
	$\dfrac{14}{5}$ or $2\dfrac{4}{5}$	A1	oe fraction SC3 $\dfrac{5}{14}$ oe fraction with A eliminated SC2 $\dfrac{2}{7}$ oe fraction with A eliminated
	Alternative method 2: splits up the fraction first		
	Chooses a value for A and works out the correct value of B or C	M1	e.g. $A = 100$ and $B = 125$ or $A = 20$ and $C = 70$
	Chooses a value for A and works out correct values for B and C	M1dep	e.g. $A = 10$ and $B = 12.5$ and $C = 35$
	Puts the correct values for B and C into fraction form (may have non-integer values)	M1dep	oe e.g. $\dfrac{35}{12.5}$
	$\dfrac{14}{5}$ or $2\dfrac{4}{5}$	A1	Oe fraction e.g. $\dfrac{140}{50}$ SC3 $\dfrac{5}{14}$ oe fraction with A eliminated

			SC2 $\dfrac{2}{7}$ oe fraction with A eliminated

	Additional Guidance	
19 cont.	Ignore an incorrect conversion of $\dfrac{14}{5}$ to a mixed number	
	2 is from taking C as 2.5A	SC2
	Condone the inclusion of B in the fraction e.g. $(C =)\dfrac{14}{5}(\times)B$ or $(C =)\dfrac{14B}{5}$	M3A1
	Alt 2 The chosen value of A does not need to be explicitly stated if method is shown and working is unambiguous or values are in correct proportion	

Q	Answer	Mark	Comments
20	$a = -3$	B1	
	$b = 4$ or 7 + their a	B1ft	
	$c = -11$ or 10 + 7 × their a	B1ft	

Additional Guidance	
$a = -3$ $b = 4$ $c = -11$ in working with one or both negative signs omitted on answer lines	B2
$a = -3$ $b = 4$ $c = -11$ in working with values in a different order on answer lines	B2

Q	Answer	Mark	Comments
	Alternative method 1: using x = 3.4777…		
	Multiplication by power of 10	M1	e.g. $10x = 34.7…$ or $100x = 347.7…$ or $1000x = 3477.7…$ any or no letter
	Correct equation formed from subtraction of two equations to eliminate recurring digits	M1dep	e.g. $9x = 31.3$ or $90x = 313$ or $99x = 344.3$
	$(x=)\dfrac{31.3}{9}$ and $\dfrac{313}{90}$ with no incorrect working	A1	oe from using different powers of 10
21	**Alternative method 2: using x = 0.4777…**		
	Multiplication by power of 10	M1	e.g. $10x = 4.7…$ or $100x = 47.7…$ or $1000x = 477.7…$ any or no letter
	Correct equation formed from subtraction of two equations to eliminate recurring digits	M1dep	e.g. $9x = 4.3$ or $90x = 43$ or $99x = 47.3$
	$(x=)\dfrac{4.3}{9}$ or $\dfrac{43}{90}$ and $(x=)3\dfrac{4.3}{9}$ or $3\dfrac{43}{90}$	A1	oe from using different powers of 10

	and $\dfrac{313}{90}$		

	Additional Guidance	
21 cont.	Up to M2 may be awarded for correct work with no answer or incorrect answer if this is seen amongst multiple attempts	
	For all marks, numbers must be correct	
	Recurring decimals should be denoted by correct notation or at least two of the recurring digits followed by at least two dots	

Q	Answer	Mark	Comments
22	$XYZ = 110$ or $BXZ = 30$	B1	Accept BZY = 110 for XYZ
	$XYZ = 110$ and $BXZ = 30$	B1	Accept BXY = 70 and BXZ = 30
	40	B1	Answer only B1

Q	Answer	Mark	Comments
23(a)	$\dfrac{49}{16}$ or $3\dfrac{1}{16}$	B1	oe with no surds or indices
	Additional Guidance		
	Ignore an incorrect conversion of $\dfrac{49}{16}$ to a mixed number		
	$\dfrac{7\sqrt{7}\sqrt{7}}{16}$ or $\dfrac{7^{2}}{16}$		B0

Q	Answer	Mark	Comments
23(b)	$1+\sqrt{5}+\sqrt{5}+(\sqrt{5})^2$ or $\quad 1+2\sqrt{5}+(\sqrt{5})^2$ or $\quad 6+2\sqrt{5}$	M1	oe 4 terms with at least 3 correct or 3 terms with 2 correct including $2\sqrt{5}$ terms may be seen in grid
	$6+6\sqrt{5}+2\sqrt{5}+10$ or $1+\sqrt{5}+\sqrt{5}+5+\sqrt{5}+5+5+5\sqrt{5}$	M1dep	oe full expansion with correct multiplication of their 2, 3 or 4 items by $\left(1+\sqrt{5}\right)$ terms may be seen in grid
	$6+6\sqrt{5}+2\sqrt{5}+10$ and $16+8\sqrt{5}$ or $1+\sqrt{5}+\sqrt{5}+5+\sqrt{5}+5+5+5\sqrt{5}$ and $16+8\sqrt{5}$	A1	oe with full expansion terms may be seen in a grid condone $8\sqrt{5}+16$

Additional Guidance	
Remember that the answer is given in the question	
5 may be seen as $(\sqrt{5})^2$ for M1 only	
Condone missing brackets if multiplications are correct	

Q	Answer	Mark	Comments
24(a)	n, n +1, n+2	B1	3 consecutive numbers seen algebraically. oe allow any letter
	(their n) + (their n + 1) + (their n + 2) =3n +3	M1	ft their consecutive algebraic expressions
	=3(…)	A1	Correctly takes out a factor of 3 from their expression

	Additional Guidance	
	$n - 1 + n + n + 1 = 3n$	B1M1A1
	$n + 1 + 2 = n + 3$	B0M1A0

Q	Answer	Mark	Comments
24(b)	$18 + x^2 + 2x + 1 + 4x - 10$	B2	B1 for at least 4 terms correct
	$= x^2 + 6x + 9$	M1	Correctly collects like terms for their expansion
	$=(x + 3)^2$	A1	

Q	Answer	Mark	Comments
25	$(\cos 60° =) \dfrac{1}{2}$ or 10 cos 60° = 5 or $(\sin 60° =) \dfrac{\sqrt{3}}{2}$ or 8 sin 60° = $4\sqrt{3}$ or $(\tan 60° =)\sqrt{33}$ or 2 tan 60° = $2\sqrt{33}$	M1	may be seen beside the given expression or in a table
	Any two of 10 cos 60° = 5 or $10\dfrac{1}{2}$ 8 sin 60° = $4\sqrt{3}$ or $8(\dfrac{\sqrt{3}}{2})$ 2 tan 60° = $2\sqrt{33}$	M1dep	oe
	Processing at least as far as $\dfrac{10}{2} + \dfrac{4\sqrt{3}}{2\sqrt{3}}$ or $\dfrac{10}{2} + \dfrac{4}{2}$	M1dep	oe
	7 from correct working	A1	