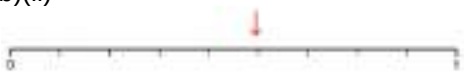
EDUQAS GCSE MATHEMATICS

SUMMER 2023 MARK SCHEME

Component 1: Foundation Tier	Mark	Comment
1(a)(i) 700	B1	
1.(a)(ii) 65 000	B1	
1.(a)(iii) −5	B1	
1.(b) 79	B1	
1.(c)(i) 13	B1	
1.(c)(ii) 24	B1	
1.(c)(iii) 49	B1	
1.(d) $\frac{2}{5}$	B2	Mark final answer. B1 for sight of an equivalent fraction to 0·4 not written in its simplest form e.g. $\frac{4}{10}$
	(9)	
2.(a)(i) Unlikely indicated	B1	
2.(a)(ii) Even chance indicated	B1	
2.(b)(i) 	B1	Diagram takes precedence.
2.(b)(ii) 	B1	Diagram takes precedence.
	(4)	
3.(a) (−5, 3)	B1	
3.(b) Point plotted at (−1, −4)	B1	
3.(c) 8 × 50 oe 400 (m)	M1 A1	Mark final answer. If units are seen they must be correct. If no marks, award SC1 for (7 × 50 =) 350 or (9 × 50 =) 450.
	(4)	

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4.(a)(i) Trousers / Top / Trainers B / W / P B / W / Y B / R / P B / R / Y G / W / P G / W / Y G / R / P G / R / Y	B2	For B2 complete table with no errors or repeats except of the first two rows. B1 for any 4 or 5 correct rows (of the remaining 6 rows), ignoring any repeated rows or incorrect rows. NB order of rows may be different
4.(a)(ii) $\frac{1}{8}$ ISW or 0·125 or 12·5%	B1	FT 'their table' providing at least B1 awarded; B0 for 1 : 8 or 1 out of 8.
4.(b)(i) Correct method to find the number of minutes si e.g. 17 + 18 7 + 10 + 10 + 8 60 – 43 + 18 35 (minutes)	M1 A1	
4.(b)(ii) $1{\cdot}2 \times 4$ or $1{\cdot}2 \div 1/4$ oe 4·8 (km/h)	M1 A1	Allow a method to calculate speed in any unit e.g. $1{\cdot}2 \div 15$ or $1200 \div 15$.
4.(b)(iii) 4·5(0 km) oe	B2	B1 for $(10 - 1) \div 2$ oe
	(9)	

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5.(a) Any decimal between 0·61 and 0·62 exclusive	B1	
5.(b) Converts each score to a common form to enable comparison e.g. $\left(\frac{18}{25}=\right)\frac{72}{100}$ and $\left(\frac{14}{20}=\right)\frac{70}{100}$ OR 72(%) and 70(%) OR 0·72 and 0·7(0) OR two correct amounts for a comparison First test or $\frac{18}{25}$ indicated, with sight of both scores converted to a common form.	B2 B1	B1 for an attempt to convert both scores to a common form STRICT FT 'their pair of values' provided B1 awarded. Award B0 B0 for an unsupported correct answer of first test.
	(4)	
6.(a) $5n$	B2	B1 for sight of one of the following: • $3n$ • $5 \times n$ • $n \times 5$ • $n + n + n + n + n$ *oe*
6.(b) (0)·9(00 kg)	B2	B1 for either: • sight of 900 • a correct conversion of 'their 4·5 × 200' to kg
	(4)	
7.(a) 2 cm by 8 cm rectangle drawn	B2	Allow a good freehand for B2 or B1. B1 for one of the following: • a rectangle/square with a perimeter 20 cm • a rectangle/square with an area of 16 cm^2 • a rectangle drawn incorrectly but labelled as 2cm and 8cm. If more than one rectangle is drawn and no answer indicated then, as this is a choice, mark the worst.
7.(b)(i) 16 (cm)	B1	
7.(b)(ii) 1 : 2	B1	Must be fully simplified. FT 8 : 'their 16' provided this can be simplified.
	(4)	
8.(a) 175	B2	B1 for sight of either: • 7 × 25 • 35 × 5
8.(b)(i) $4 \times (3 - 1) + 6 = 14$	B1	
8.(b)(ii) $\sqrt{36} \div (2 + 1) = 2$	B1	
	(4)	

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9.(a) $42 \div 3$ (£)14(.00)	M1 A1	
9.(b) $(120 \div 8) \times 12$ or $(120 \div 2) \times 3$ or $120 + (120 \div 2)$ oe (£)180(.00)	M1 A1	
9.(c) $(18 \div 100) \times 2$ oe (£)0.36 or 36(p) ISW	M1 A1	If no marks award SC1 for 1% is 18(p) oe If units are given they must be correct, but condone use of both £ and p e.g. £0.36p. If no marks, award SC1 for an unsupported (£)18.36.
	(6)	
10.(a) $-6,\ -3,\ 0$	B2	B1 for any two correct.
10.(b) Correct line drawn from $x = -2$ to $x = 2$	B2	B1 for either: • a correct line drawn but not over full domain. • 5 points plotted correctly. FT 'their table'.
	(4)	
11.(a) $342 + \frac{342}{10} \times 2$ oe, si (£)410.4(0)	M2 A1	M1 for $\frac{342}{10} \times 2$ oe (= £68.4(0))
11.(b) $57 \times 6 \div 3$ oe, si (£)114(.00)	M2 A1	M1 for one of the following: • 57×6 (= 342) • $57 \div 3$ (= 19) • ¼ is 2 payments • ¾ is 6 payments
	(6)	
12.(a) Valid explanation with comparison or correct use of more/less e.g. • 'The price per 100g should be 40p'. • 'The flapjacks would cost £10 if they cost £4 per 100g'. • 'For £4 I should get 1000 g of flapjacks'. • '250g is **more** than £1 because its £4 **per** 100g'. • 'If £4 for 100g then 250g should cost **more** than £1'. • 'The shop meant to put 25g not 250g'. • '100g should be **less** than the supermarket's price as they sell 250g for £1'.	E1	If calculations are given, they must be correct. Allow 'The price per 100g is far **too high**.' Do not allow 'It says 250g for £1 so it can't be 100g for £4'.

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12.(b) Method to find both unit costs e.g. • 150 ÷ 5 (cost for 10 biscuits) and 96 ÷ 3 (cost for 10 biscuits) OR • 150 × 3 (cost for 150 biscuits) and 96 × 5 (cost for 150 biscuits) OR • 150 ÷ 50 × 30 (cost for 30 biscuits) oe OR • 96 ÷ 30 × 50 (cost for 50 biscuits) oe Correct unit costs e.g. • 30p and 32p (per 10 biscuits) OR • £4.50 and £4.80 (per 150 biscuits) OR • 90(p for 30 biscuits) OR • 160(p for 50 biscuits) **AND** 50 biscuits indicated.	M2 A1	Calculations may be in pounds or pence. Accept alternative convincing methods e.g. 50 ÷ 150 and 30 ÷ 96 (biscuits per penny) M1 for attempting to find the cost of a common factor/multiple of biscuits for <u>either</u> pack e.g. • 150 ÷ 5 • 96 ÷ 3 • 150 × 3 • 96 × 5 • 150 ÷ 50 • 96 ÷ 30 Or M1 for 50 ÷ 150 OR 30 ÷ 96 Allow for e.g. 3 (p per biscuit) and 3 r 6 (p per biscuit) **AND** 50 biscuits indicated. If units are given, they must be correct.
	(4)	
13.(a)(i) 10·74	B2	B1 for either: • an attempt to subtract correct place values in 12·10 – 1·36 e.g. an answer with 4 in the 2nd decimal place • a correct method with at most one error in their subtraction. <u>B0 for errors in place value.</u>
13.(a)(ii) 0·24	B1	
13.(a)(iii) $\frac{5}{12}$ oe	B2	B1 for one of the following: • sight of 2/12 • conversion of <u>both</u> fractions to a common denominator, allowing one slip in the numerator • 3·5/6 – 1/6 = 2·5/6 (full calculation)
13.(b) 156·5	B2	B1 for 15.65 or 1565.
	(7)	
14.(a) 10800 ÷ 9 OR 10800 ÷ 48 1200 OR 225 1200 ÷ 48 OR 225 ÷ 9 25 (necklaces)	M1 A1 m1 A1	 CAO FT 'their 1200' OR 'their 225' FT
<u>Alternative method</u> *48 × 9* *432* *10800 ÷ 432* *25* (necklaces)	*M1* *A1* *m1* *A1*	 *CAO* *FT 'their 432'* *FT*

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14.(b) 246×54	M1	
13 284	A1	CAO
13 284 – 10 800	m1	FT 'their 246×54' providing greater than 10 800
(£)2484	A1	FT
	(8)	
15. No indicated and two distinct valid reasons based on sample size/time/location/bias. e.g. • 'She needs to ask more than 15 people'. • 'She needs to vary the time that she asks people, not just go to one meeting'. • 'People at the drama group will probably go more often'.	E2	No may be clearly implied by two valid reasons without contradiction. E1 for either: • one valid reason, • two valid reasons, but with Yes indicated. Allow E2 if two reasons are stated in one answer space, with the second answer space blank or containing a non-contradictory reason. Allow • 'she's only asking 15 people', • 'she's only asking people in her drama group', • 'maybe not everyone in her drama group is from her town'. Do not allow 'she hasn't asked everyone in her town'.
	(2)	
16. Finds the number of slabs for the length <u>and</u> width of the pond	S1	May be implied by 5 slabs or 7 slabs correct
(Number of slabs = 5 + 7 + 5 + 7 + 4 =) 28	B1	
$28 \div 4 \times 3$ OR $28 \div 4$ ($\times 1$)	M1	FT 'their 28' if a multiple of 4.
21 grey and 7 white si	A1	CAO
$5 \times 21 + 6 \times 7$	m1	FT 'their 21' and 'their 7'
(£)147	A1	CAO Award S1 B0 M1 A0 m1 A0 SC1 for a final answer of £126.
	(6)	
17.* 140 + 180 or 360 – 40	M1	
320°	A1	
	(2)	
18.*(a) $\frac{7}{15}$	B1	Accept equivalent fractions.

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18.(b) $\frac{60}{15}\times 3$ or $\frac{60}{15}\times 5$ or $\frac{60}{15}\times 7$ si 12 (cm), 20 (cm), 28 (cm)	 M1 A1	 FT 'their 3 + 5 + 7' from (a). FT. Two correct answers imply M1. May be seen in any order.
	(3)	
19.*(a) 2	B2	B1 for sight of two correct consecutive terms from the sequence 11, 13, 15, 17, …
19.(b)(i) $n < 45$ oe	B2	B1 for either: • $2n < 99 - 9$ oe • $n < k/2$, where k is a constant. Use of '=' is B0 unless finally replaced
19.(b)(ii) 44	B1	FT 'their 45' – 1
	(5)	
20.* 65 × 0.8(0) oe (£)52 52 × 1.2(0) oe (€)62.4(0) and online indicated	 M1 A1 M1 A1	 FT 'their 65 × 0.8(0)' Airport / Online £: 52 / 50 $: 65 / 62.5(0) €: 62.4(0) / 60
Alternative method 1 *65 × 0.8(0) oe* *(£)52* *60 ÷ 1.2(0) oe* *(£)50 and online indicated*	 *M1* *A1* *M1* *A1*	
Alternative method 2 *60 ÷ 1.2(0) oe* *(£)50* *50 ÷ 0.8(0) oe* *($)62.5(0) and online indicated*	 *M1* *A1* *M1* *A1*	 *FT 'their 60 ÷ 1.2(0)'*
	(4)	

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21.* $(x =)\ \frac{360-290}{2}$ oe	M2	Check diagram M1 for $x + 75 + x + 70 + 85 + 60 = 360$ oe May be in stages e.g. $60 + 85 = 145$, $360 - 145 = 215$, $2x + 145 = 215$
$x = 35$	A1	Implied by 105 on the diagram.
$y = 180 - (35 + 70)$ or $x + 70 = 180 - y$	m1	FT 'their derived 35' provided it is less than 110 and M2 previously awarded.
$y = 75$	A1	FT
	(5)	
22.*(a) $x = 0{\cdot}7$ or $0{\cdot}8$	B1	
$y = 1{\cdot}4$ or $1{\cdot}5$	B1	If no marks award SC1 for one of the following: • a value of x between 0·7 and 0·8 (including 7/9) and a value of y between 1·4 and 1·5 (including $1\frac{4}{9}$ or $\frac{13}{9}$), • correct values given as coordinates in the working lines, • correct answers, written to 1 decimal place, reversed.
22.(b)(i) -8	B1	Allow $(0, -8)$ or $y = -8$
22.(b)(ii) $(-1, -9)$	B2	B1 for each. If no final coordinate given, allow: • B2 for an unambiguous $x = -1$ AND $y = -9$ seen in the working • B1 for an unambiguous $x = -1$ OR $y = -9$ seen in the working If no marks, award SC1 for $(-9, -1)$.
22.(b)(iii) $x = -4$, $x = 2$	B1	If answer line is not completed, allow -4, 2, but do not allow $(-4, 2)$
	(6)	

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23.* Sight of 70% and 5×10^8 OR 71% and 5×10^8 OR 70% and $5{\cdot}1 \times 10^8$ $0{\cdot}7 \times 5 \times 10^8$ oe OR $0{\cdot}71 \times 5 \times 10^8$ oe OR $0{\cdot}7 \times 5{\cdot}1 \times 10^8$ oe $3{\cdot}5 \times 10^8$ (km^2) ISW OR $3{\cdot}55 \times 10^8$ ISW OR $3{\cdot}57 \times 10^8$ ISW	B1 M1 A1	Not for sight of 71% and $5{\cdot}1 \times 10^8$ Allow for $0{\cdot}71 \times 5{\cdot}1 \times 10^8$ If 5×10^8 or 5.1×10^8 is written in ordinary form, condone a slip by a power of 10 for M1. e.g. $0{\cdot}7 \times 50\,000\,000$ CAO Award B1 M1 A1 for an unsupported answer of $3{\cdot}5 \times 10^8$ (km^2).
	(3)	
24.* $\frac{2}{8} \times \frac{2}{8}$ or $\frac{1}{4} \times \frac{1}{4}$ $\frac{4}{64}$ or $\frac{1}{16}$ ISW	M1 A1	
	(2)	
25.* $4a + c = 9.5(0)$ AND $5a + 2c = 13$ oe Method to eliminate an unknown e.g. equal coefficients and subtraction or rearranges one equation and substitutes into the other Finds one unknown Finds the other unknown (£)9(.00) or 900(p)	 B1 M1 A1 A1 B1	Allow other letters or words throughout. Values may be in pence throughout FT their equations provided one is correct and the other is linear in the same pair of unknowns. Allow one error in one term, not in the equated coefficients. Allow one error in rearrangement but not substitution. CAO; $a = 2$ or $c = 1.5(0)$ FT 'their a' or 'their c' used in one of their equations. Provided at least <u>two</u> of the previous four marks awarded, FT 3('their derived a') + 2('their derived c') If units are given, they must be correct. <u>For candidates that are awarded B1</u> and use trials to find the values of a and c, award SC2 for a final answer of (£)9(.00) or 900(p).
	(5)	

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