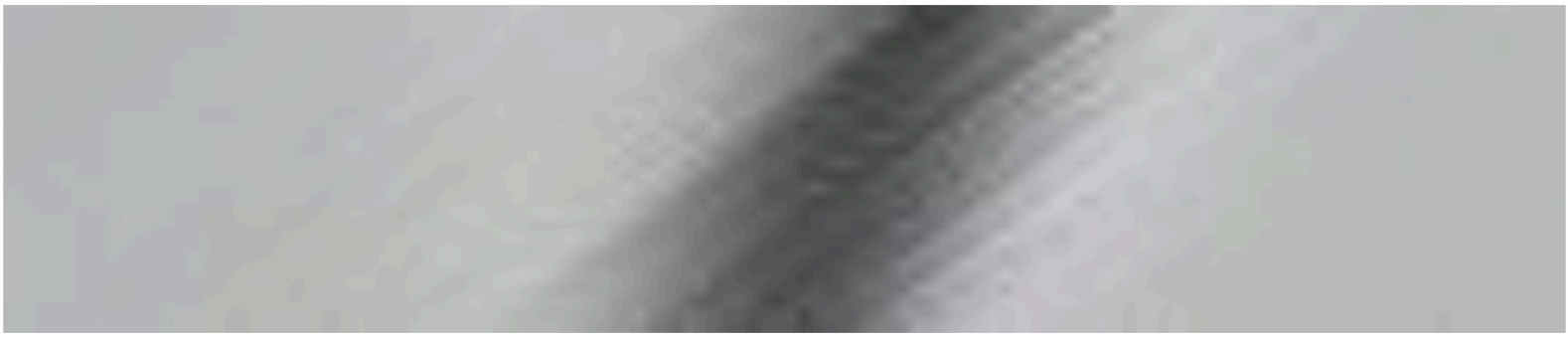

BECE (SC) 2024

MATHEMATICS 2

QUESTION NO.	SOLUTION	MARKS
	ALITER	
	Length of field on map $= \frac{88}{8}$	**M1 for division**
	$= 11m$	**A1 for 11m**
	1 : 100	
	11 : 1100	
	8 : 800	
	Area of field $= 1100 \times 800$	**M1 for product**
	$= 880{,}000cm^2$	
	Area in $m^2 = \frac{880{,}000}{100 \times 100}$	**M1 for conversion**
	$= 88m^2$	**A1 for answer**
1. (c)	10 3 8 5 7 9 6 11 4 all entries	**M 1 for any row, column or diagonal correct** **A3 $\left(-\frac{1}{2}ee\right)$ for correct entries** **(-1 ou/wu once only)** **[15 Marks]**

BECE (SC) 2024

MATHEMATICS 2

QUESTION NO.	SOLUTION	MARKS
2. (a)	If P = Q	
	Then $\begin{pmatrix} m+3 \\ 2-n \end{pmatrix} = \begin{pmatrix} 3m-1 \\ n-8 \end{pmatrix}$	M1 for equating two corresponding components
	$m + 3 = 3m - 1$	
	$2m = 4$	M1 for solving for m
	$m = \frac{4}{2}$	
	$m = 2$	A1 for answer
	$2 - n = n - 8$	
	$2n = 10$	M1 for solving for n
	$n = \frac{10}{2}$	
	$n = 5$	A1 for answer
(b) (i)	Total parts = 6 + 5 = 11	B1 for total parts
	Let y = Total amount shared	
	Baaba's share = GH¢1,200.00	
	$\frac{6}{11}y = 1{,}200$	M1 for equation or its equivalent
	$6y = 11 \times 1{,}200$	M1 for solving
	$y = \frac{11 \times 1{,}200}{6}$	
	$y = 2{,}200$	A1 for answer
	Total amount = GH¢2,200.00	

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BECE (SC) 2024

MATHEMATICS 2

QUESTION NO.	SOLUTION	MARKS
(b) (ii)	William's share = GH¢2,200.00 – GH¢1,200.00	M1 for subtracting
	= GH¢1,000.00	A1 for GH¢1,000.00
	$I = \frac{prt}{100}$	
	$= \frac{1,000 \times 20 \times 2}{100}$	M1 for finding interest
	I = GH¢400.00	A1 for I = GH¢400.00
	Total amount in the account = GH¢1,000 + GH¢400	M1 for finding total amount
	= GH¢1,400.00	A1 for answer
		(-1 ou/wu or 2 d.p. once only)
		[15 Marks]

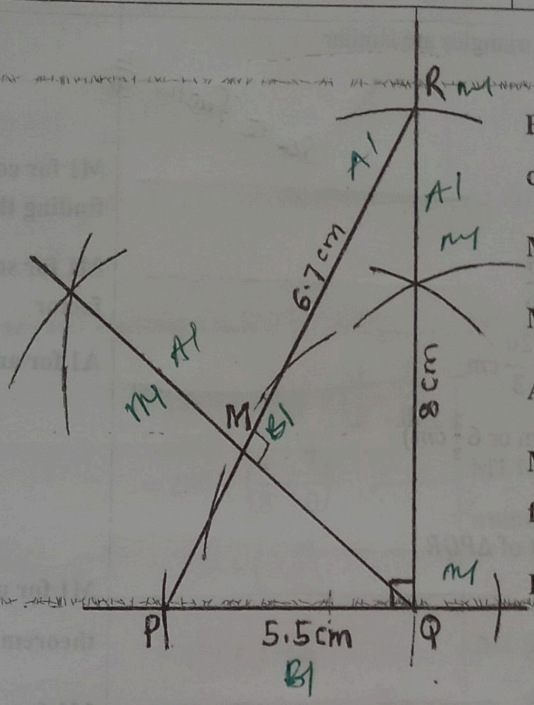
BECE (SC) 2024

MATHEMATICS 2

QUESTION NO.	SOLUTION	MARKS
3. (a)	$3\sqrt{50} + 2\sqrt{45} - \sqrt{2} + \sqrt{5}$	
	$= 3\sqrt{25 \times 2} + 2\sqrt{9 \times 5} - \sqrt{2} + \sqrt{5}$	M1 for finding needed factors of 50 or 45
	$= 3 \times \sqrt{25} \times \sqrt{2} + 2 \times \sqrt{9} \times \sqrt{5} - \sqrt{2} + \sqrt{5}$	
	$= 3 \times 5\sqrt{2} + 2 \times 3\sqrt{5} - \sqrt{2} + \sqrt{5}$	A1 for $5\sqrt{2}$ and $3\sqrt{5}$
	$= 15\sqrt{2} + 6\sqrt{5} - \sqrt{2} + \sqrt{5}$	M1 for simplifying to get $14\sqrt{2}$ or $7\sqrt{5}$
	$= 14\sqrt{2} + 7\sqrt{5}$	A1 for answer
(b)	Let $l = w + 7$	B1 for length $= w + 7$ or its equivalent
	$2(w + 7) + 2w = 38$	M1 for equation
	$2w + 14 + 2w = 38$	
	$4w = 38 - 14$	M1 for solving
	$4w = 24$	
	$w = 6cm$	A1 for $w = 6cm$
	Length $= w + 7$	
	$= 6 + 7$	M1 for finding length
	$= 13cm$	A1 for $l = 13cm$
	Area $= 6cm \times 13cm$	M1 for finding area
	$= 78cm^2$	A1 for answer
(c)	Let 15% = 720m	
	Half $= 50\% = \frac{50}{15} \times 720$	M1 for correct ratio × 720
	$= \frac{5 \times 10 \times 8 \times 9 \times 10}{5 \times 3}$	
	$= 10 \times 8 \times 3 \times 10$	M1 for simplifying
	$= 2{,}400\ metres$	A1 for correct answer
		(-1 ou/wu once only)
		[15 Marks]

BECE (SC) 2024

MATHEMATICS 2

QUESTION NO.	SOLUTION	MARKS
4.		B1 for $\|PQ\| = 5.5 \pm 0.1cm$ or $\|QR\| = 8 \pm 0.1cm$ M1 M1 A1 for $\angle PQR = 90°$ M1 for arcs and locating R or P A1 for completing the triangle M1 M1 A1 for perpendicular from Q to line PR B1 for locating M
(d) (i)	$\|MR\| = 6.6 \pm 0.1cm$	B1 for correct value of $\|MR\|$
(ii)	$\|QM\| = 4.6 \pm 0.1cm$	B1 for correct value of $\|QM\|$
(e)	Area of $\Delta QMR = \frac{1}{2} \times \|MR\| \times \|MQ\|$ $= \frac{1}{2} \times 6.6cm \times 4.6cm$ $= \frac{1}{2} \times 30.36cm^2$ $= 15.18cm^2$ $\cong 15cm^2$ Measure and compare	M1 for finding area M1 for simplifying with evidence A1 for answer (-1 ou/wu once only) [15 Marks]

QUESTION NO.	
5. (a) (i)	Si
(ii)	

	$= 620 + \frac{2+4+1}{8}$	M1 for sum of whole numbers, common denominator (CD) and one numerator correct
	$= 620 + \frac{7}{8}m^2$	
	$= 620\frac{7}{8}m^2$	A1 for correct area
	Area of Roads and Walkways $= 900\frac{1}{2} - 620\frac{7}{8}$	M1 for subtracting
	$= (900 - 620) + \left(\frac{1}{2} - \frac{7}{8}\right)$	
	$= 280 + \left(\frac{4}{8} - \frac{7}{8}\right)$	M1 for 280, CD and one numerator correct
	$= 280 + \left(-\frac{3}{8}\right)$	
	$= 279 + 1 - \frac{3}{8}$	M1 for use of CD to simplify
	$= 279\frac{5}{8}m^2$	A1 for answer (-1 for ou/wu <u>once</u> only)
		[15 Marks]

BECE (SC) 2024

MATHEMATICS 2

QUE. NO.	SOLUTION	MARKS
6. (a)		

°C	0	5	10	15	20	25	30
°F	32	41	50	59	68	77	86

B4 (-1 *ee*) for correct entries

(b) See attached graph

Horizontal and vertical axes — B1 B1 $\left(-\frac{1}{2}ee\right)$

Plotting of points — B4 $\left(-\frac{1}{2}ee\right)$ for correct points

Joining of points — B1 for joining all points with a straight line

error, scale, interval

(c) From the graph, when °F = 55,

$°C = 12.75 \pm 0.5$

M1 for evidence of reading from the graph
A1 for answer

(d) If °C changes by 5 units, °F would change by 9 units.

OR

If °C changes by 1 unit, °F would change by $\frac{9}{5}$ or 1.8 units.

OR

If °C changes by 1%, °F would change by 1.8%.

OR

The rate of change of °F due to a change in °C is $\frac{9}{5}$ or 1.8.

M1 for use of 5 for Δ°C or 9 for Δ°F or finding slope

A1 for any one correct interpretation

OR.

Finding the gradient — M_1

Decribe the gradient — A1

[15 Marks]