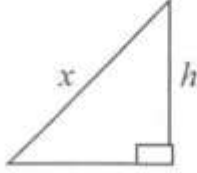


WAKISSHA
 MARKING GUIDE
 Uganda Certificate of Education
 MATHEMATICS 456/1

1.	$(x+5+x+2)(x+5-x-2)$ $= (2x+7)(3)$ $= 3(2x+7) = 9$ $2x+7 = 3$ $2x = -4$ $x = -2$	m	Factors C's factors
		4	marks
2.	$2*1 = 2^2 - 1 - 3$ $9*Z = 9^2 - 1 - 76$ $81 - z = 76$ $z = 81 - 76$		
		4	marks
3.	$\frac{360}{18}$ <p>Number of sides</p> <p>Sum of interior angle</p> $= (180 - 18) \times 20$ $= 162 \times 20 = 3240^0$	ml ml	Accept of alternative
		4	marks
4.	$2x+5y=11$ $3x-y=8$ $2x+5y=11$ $15x-5y=40$ <hr/> $17x=51$		Accept of alternative
		4	marks

5.	$\begin{pmatrix} 2 \\ -4 \end{pmatrix} + \begin{pmatrix} 9 \\ b \end{pmatrix} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$ $2 + a = 4$ $a = 2$ $-4 + b = 5$ $b = 9$ $(2, 9)$	ml	Equation Equation
		4	marks

I

6.	$m^{-1} = \frac{1}{18-16} \begin{pmatrix} 2 & 2 \\ 8 & 9 \end{pmatrix}$ $= \frac{1}{2} \begin{pmatrix} 2 & 2 \\ 8 & 9 \end{pmatrix}$ $= \begin{pmatrix} 1 & 1 \\ 4 & 4.5 \end{pmatrix}$	m_1 m_1 m_1 A_1	Determinant a found Simplification																																																	
		4	marks																																																	
7.	$x = \frac{126}{2} = 63^\circ$ $y = 180 - 63$ $= 117^\circ$	m_1 A_1 m_1 ✓ C's 63 m_1																																																		
		4	marks																																																	
8.	 <p style="text-align: center;">12cm</p> $\frac{1}{2} x \cdot 12h = 60$ $12h = 120$ $h = 10\text{cm}$ <p>Hypotonic = x^2</p> $x = \sqrt{12^2 + 10^2}$ $= \sqrt{244} = 15.62$	m_1 m_1 m_1 A_1																																																		
		4	marks																																																	
9.	$\frac{14X2p+15Xp+16X10}{2p+p+10} = 15$ $\frac{28p+15p+160}{3p+10} = 15$ $43p+160 = 15(3p+15)$ $43p+160 = 45p+150$ $2p = 10.$ $p = 5$	m_1 m_1 m_1 A_1	Expression Simplification Like terms																																																	
		4	marks																																																	
10.	<table border="1" style="width: 100%; text-align: center;"> <tr><td>+</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> <tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr> <tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> </table>	+	1	2	3	4	5	6	1	2	3	4	5	6	7	2	3	4	5	6	7	8	3	4	5	6	7	8	9	4	5	6	7	8	9	10	5	6	7	8	9	10	11	6	7	8	9	10	11	12	B_2	
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	$\frac{15}{36} = \frac{5}{12}$																						
		4	Marks																				
SECTION B																							
11.	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> </tr> <tr> <td style="padding: 5px;">- 8</td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">-</td> </tr> <tr> <td></td> <td></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">8</td> </tr> </table>			0	1	2	3	- 8	-	-	4	4	2	-	-			2	8				
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$y = x^2 + x - 8$	4			- 8																			
$y = 4 - x - x^2$	-		2	4																			
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	<p>(b) refer to graph paper</p> <p>(c) $x_1 = -3$</p>																						
	132	from correct graph																					
12																							

(a) The 4 x 4 matrix is

$$P = \begin{pmatrix} 510 & 3 \\ 0 & 1 \\ 10 & 0 \\ 36 & 1 \end{pmatrix}$$

(b) (i) The cost matrix

$$B = \begin{pmatrix} 250,000 & 250.00 \\ 60,000 & 60.00 \\ 20,000 & 20.00 \\ 70,000 & 70.00 \end{pmatrix}$$

(ii)

$$P = \begin{pmatrix} 3 & 5 & 10 & 3 \\ 0 & 0 & 0 & 1 \\ 5 & 1 & 0 & 0 \\ 4 & 3 & 6 & 1 \end{pmatrix}$$

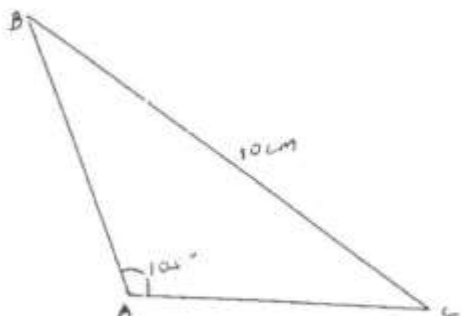
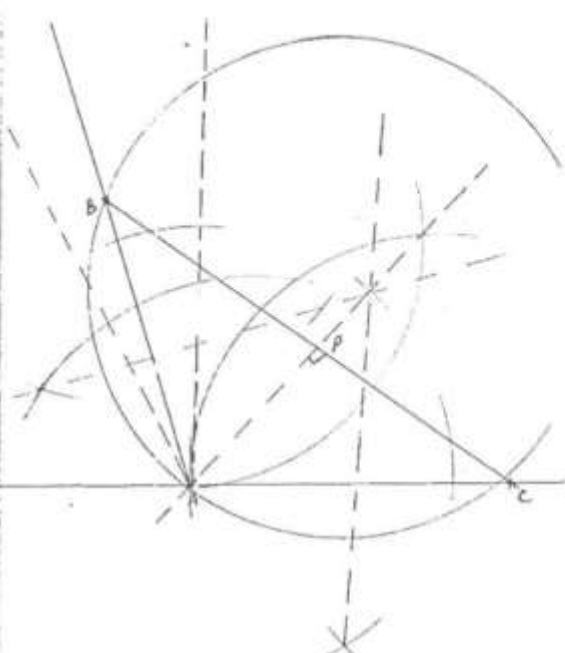
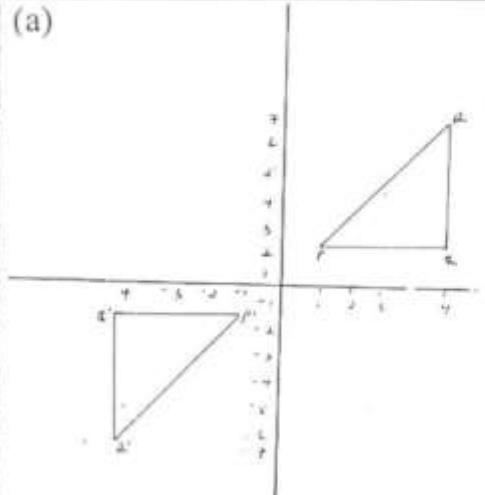
P 1,520,000
Q 90,000

1,390,000
He spent 1,520,000 at P at
90,000 Q
1,390,000

(c) total spent
= 1,520,000 + 90,000
= 1,610,000

B₁
B₁
B₁
B₁

000+1,390,000 MI

<p>13. Sketch</p>	<p style="text-align: center;">SKETCH</p>  <p style="text-align: center;"> $A = \frac{1}{2} \times 5 \times 3.9$ $= 19.5 = 0.5$ </p> 	<p>12 marks</p> <p>B₁ Sketch</p> <p>B₁ AB = 6cm</p> <p>B₁ BC = 10cm arc seen</p> <p>B₁ $\angle BAC = 105^\circ$ arc seen</p> <p>B₁ Perpendicular on BC from A arc seen</p> <p>B₁ point P</p> <p>B₁ AB = 3.9cm \pm 0.1</p> <p>M1 A1 B₁ } Perpendicular B₁ } Bisectors on ABC</p> <p>B₁ Radius = 5.1 \pm 0.19</p>	<p>12 marks</p>
<p>14. (a)</p>		<p>B₂ Sketch of PQR (on graph paper)</p> <p>B₂ P¹ Q¹ R¹ on graph paper</p>	

	<p>(b) Rotation through 180° (half turn) about the origin.</p> <p>(c) Matrix for half turn is</p> <p>(d) Matrix that maps PQR onto $P^{\text{li}} Q^{\text{II}}$</p> $R^{\text{II}} \text{ is } \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}, \begin{pmatrix} -1 & \\ & 0 \end{pmatrix}$ $= \begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$ <p>Matrix that maps $P^{\text{li}} Q^{\text{I}} R$ to PQR is</p> $\begin{matrix} 0 & 1 \\ & - \\ & - \\ & & -1 \end{matrix}$		

15.	(a)	<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 20%; height: 20%;"></div> <div style="border: 1px solid black; width: 20%; height: 20%;"></div> <div style="border: 1px solid black; width: 20%; height: 20%;"></div> <div style="border: 1px solid black; width: 20%; height: 20%;"></div> <div style="border: 1px solid black; width: 20%; height: 20%;"></div> </div> <p style="text-align: center; margin-top: 10px;"> $\text{Mean } 27 + \frac{-110}{50}$ $= 27 - 2.2$ 24.8 </p>	<p>B₁</p> <p>B₁</p> <p>B₁</p> <p>B₁</p> <p>B₁</p>	<p>Class mark</p> <p>$x - A$</p> <p>$\Sigma f =$</p> <p>Fd = 50</p> <p>Efd = 110</p>
	(b)		<p>Boundaries</p> <p>Bars</p> <p>(Graph paper)</p>	
	(c)	<p>Modal mark = 24.9.3.1</p>		

<p>16. (a) $(c+d)$ 60</p> $\begin{array}{r} 30(c-d) \quad 60 \\ (c-d) = 2 \dots\dots(1) \\ \underline{(c+d) = 30 \dots\dots(1)} \quad 30 \dots\dots(1) \\ 2c = 32 \quad 32 \\ \quad c \quad 16 \\ \quad \quad 16d \\ \quad \quad \quad 14 \\ \quad \quad \quad \text{posho} \end{array}$ <p>(b) let r rice, p</p> $\begin{aligned} & 2r - 10,000 \\ & = 9,500 \\ & = 20,000 \\ \underline{6r + 9p} & = 28,500 \end{aligned}$ $p = 1,700r \quad \begin{array}{l} 5/7 = \\ 8,500 \end{array}$ $\begin{aligned} 6r + 4 \times 1,700 & = 20,000 \\ 6r + 6,800 & = 20,000 \\ 6r & = 13,200 \\ r & = 2,200 \\ & 1,700r \\ & = 13,200 \\ & = 2,200 \end{aligned}$	<p>MI</p> <p style="text-align: center;">A₁ M₁ A₁</p>	<p>Factorization Substitution</p>
	12	marks

<p>17.</p>	<p>(a) The inequalities $50x + 75y \leq 600,000$</p> <p>$40,000x + 50,000y \leq 600,000$</p> <p>$V \leq 60 \dots \dots \dots (ii) \quad x <$</p> <p>$7 \dots \dots \dots (iii)$</p> <p>$y \leq x \dots \dots \dots (iv)$</p> <p>. graph paper 1 5y = 120 line shading $4x + = 60$ line shading Y x line and shading Y 7 line and shading</p> <p>(c) Minimum at (6, 4) 6 trips of truck A 4 trips of truck B</p>	<p>131</p> <p>131</p>	
		<p>12</p>	<p>marks</p>

Q 17.

