

SULIT
1449/2(GMP)
Mathematics
Kertas 2 SET2
Peraturan
Pemarkahan
2014

1449/2(GMP)



SKEMA PRAKTIS BESTARI
PROJEK JAWAB UNTUK JAYA (JUJ) 2014



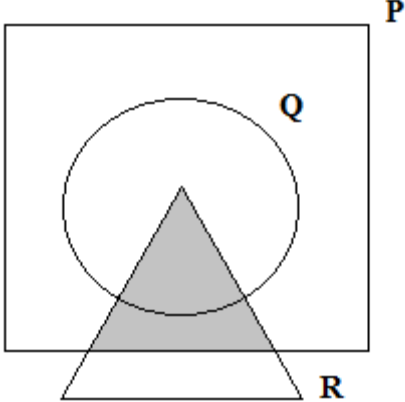
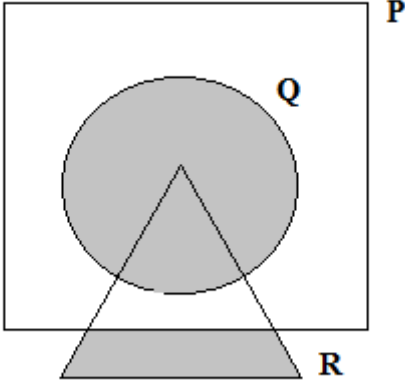
MATHEMATICS
Kertas 2
SET 2

PERATURAN PEMARKAHAN

UNTUK KEGUNAAN GURU MATA PELAJARAN SAHAJA

Peraturan pemarkahan ini mengandungi 17 halaman bercetak

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Question	Solution and Mark Scheme	Marks	
<p>1(a)</p>		<p>P1</p>	
<p>(b)</p>			<p>P2</p>

Question	Solution and Mark Scheme	Marks	
2	$12x + 2y = 36$ or $3x - 6y = 48$ <u>or</u> equivalent	K1	
	<p><u>Note</u> Attempt to equate the coefficient one the unknowns, award K1</p> $13x = 52$ <u>or</u> $\frac{13y}{2} = -39$ <u>or</u> equivalent	K1	
	<p><u>OR</u></p> $x = 16 + 2y$ <u>or</u> $y = \frac{x-16}{2}$ <u>or</u> equivalent (K1) <p><u>Note</u> Attempt to make one of the unknowns as the subject, with two terms on other side, award K1</p> $\frac{13y}{2} = -39$ <u>or</u> $13x = 52$ <u>or</u> equivalent (K1) <p><u>OR</u></p> $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{(-2 \times 3) - (1 \times \frac{1}{2})} \begin{pmatrix} -2 & -\frac{1}{2} \\ -1 & 3 \end{pmatrix} \begin{pmatrix} 9 \\ 16 \end{pmatrix}$ <u>or</u> equivalent (K2) <p><u>Note</u> Attempt to write matrix equation, award K1</p> $x = 4$ $y = -6$ <p><u>Note:</u> If $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}$ as final answer, award N1</p>	N1	N1
			4

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Question	Solution and Mark Scheme	Marks	
3	$x^2 - 5x - 6 = 0$ $(x+1)(x-6) = 0 \text{ or equivalent}$ <p><u>OR</u></p> $x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(1)(-6)}}{2(1)} \text{ or equivalent (K1)}$ $x = -1$ $x = 6$ <p><u>Note:</u></p> <ol style="list-style-type: none"> 1. Accept without “ = 0” 2. Accept three terms on the same side, in any order 3. Accept correct answers from three correct terms without factorization for Kk2. 	K1	
		K1	
		N1	
		N1	
			4
4(a)	$\angle JFG \text{ or } \angle GFJ$	P1	
(b)	$\tan \theta = \frac{4}{*10} \text{ or equivalent}$ $21.80^\circ \text{ or } 21^\circ 48'$	K1	
		N1	
			3

Question	Solution and Mark Scheme	Marks	
<p>5(a)</p> <p>(b)</p>	$m_{PS} = m_{QR} = -2$ $-2 = (-2)(3) + c \text{ or } y + 2 = (-2)(x - 3) \text{ or equivalent}$ <p>Note : $-2 = *(-2)(3) + c \text{ or } y + 2 = *(-2)(x - 3) \text{ or equivalent award K1}$</p> $y = -2x + 4 \text{ or equivalent}$ $(0) = -2x + 4$ $x = 2$	P1	
	K1		
	N1		
	K1		
N1		5	
<p>6(a)</p> <p>(b)</p> <p>(c)</p>	$\frac{1}{2} \times (v + 18) \times 16 = 256$ $v = 14$ $256 + (12 \times 18) + \frac{1}{2} \times (12) \times (18)$ 580 $\frac{580}{40}$ 14.5		K1
	N1		
	K1		
	N1		
	K1		
	N1		6

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Question	Solution and Mark Scheme	Marks	
<p>7(a)</p> <p>(b) (i)</p> <p>(ii)</p> <p>(c)</p>	<p>False/Palsu</p> <p>If $x - y > 0$ then $x > y$ Jika $x - y > 0$ maka $x > y$</p> <p>If $x > y$ then $x - y > 0$ Jika $x > y$ maka $x - y > 0$</p> <p>$x \neq 5$</p>	<p>P1</p> <p>P1</p> <p>P1</p> <p>P1</p>	<p></p> <p></p> <p>4</p>
<p>8(a)</p> <p>(b)</p>	$-\frac{1}{2} \begin{pmatrix} 2 & 5 \\ 4 & 9 \end{pmatrix}$ $\begin{pmatrix} 9 & -5 \\ -4 & 2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -6 \\ -2 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{(9)(2) - (-5)(-4)} \begin{pmatrix} 2 & 5 \\ 4 & 9 \end{pmatrix} \begin{pmatrix} -6 \\ -2 \end{pmatrix}$ $x = 11$ $y = 21$ <p><u>Note:</u></p> <p>1. Do not accept $\begin{matrix} * \\ \text{matrix} \end{matrix} \begin{pmatrix} \textit{inverse} \\ \end{pmatrix} = \begin{pmatrix} 2 & -5 \\ -4 & 2 \end{pmatrix}$ <u>or</u></p> $\begin{matrix} * \\ \text{matrix} \end{matrix} \begin{pmatrix} \textit{inverse} \\ \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}.$ <p>2. $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 11 \\ 21 \end{pmatrix}$ as final answer, award N1 .</p> <p>3. Do not accept solutions solved not using matrix method.</p>	<p>P2</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>N1</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p>6</p>

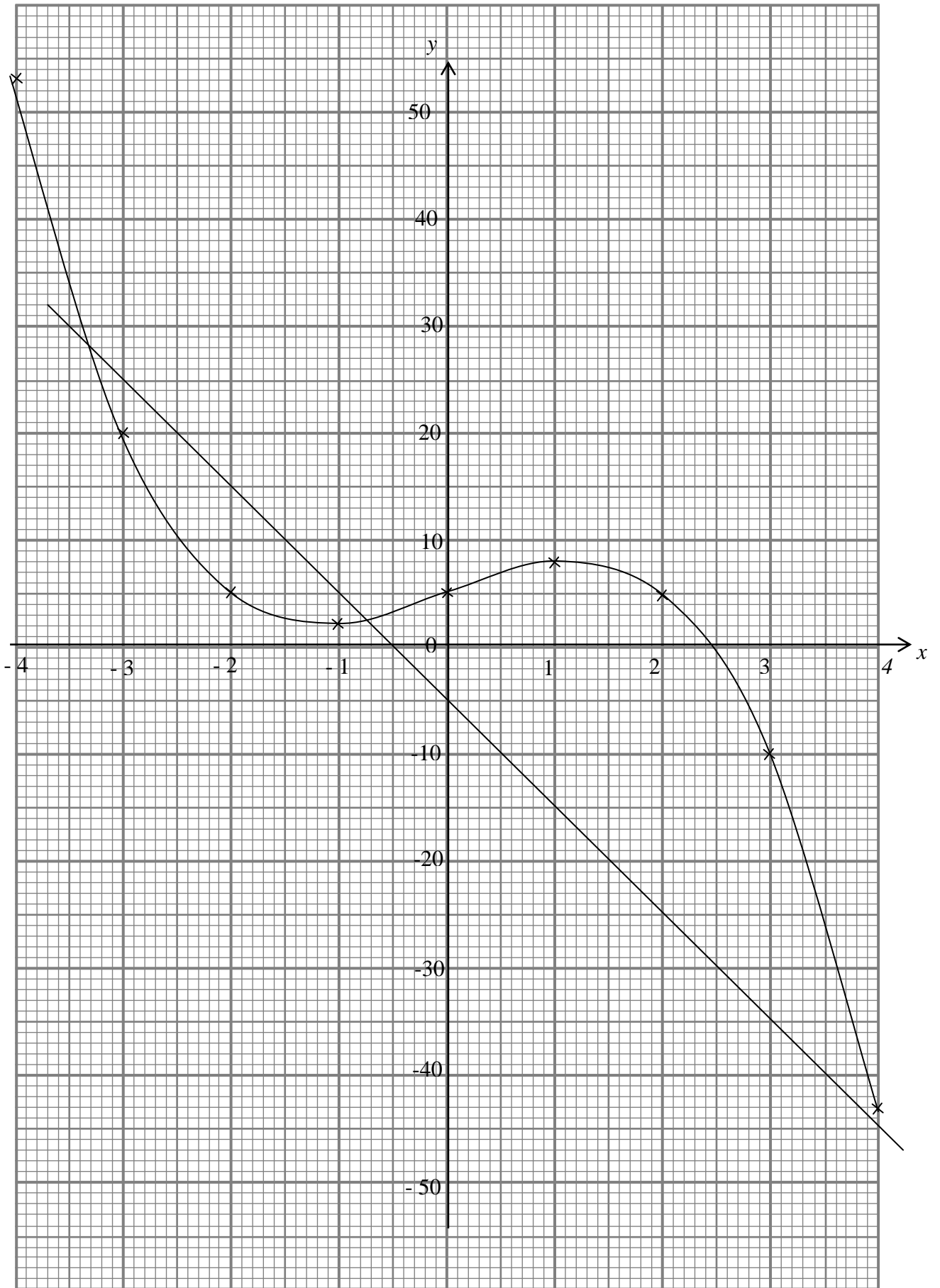
Question	Solution and Mark Scheme	Marks	
<p>9</p>	$\frac{22}{7} \times 7 \times 7 \times 14$ $\frac{1}{3} \times \frac{22}{7} \times 7^2 \times 7$ $\frac{22}{7} \times 7 \times 7 \times 14 - \frac{1}{3} \times \frac{22}{7} \times 7^2 \times 7$ $1796\frac{2}{3} \text{ or } \frac{5390}{3} \text{ or } 1796.67$	<p>K1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p></p> <p></p> <p></p> <p></p> <p style="text-align: center;">4</p>
<p>10(a)</p> <p>(b)</p> <p><u>Note:</u> 1. Accept π for mark. 2. Accept correct value from incomplete substitution for K mark. 3. Correct answer from incomplete working, award Kk2</p>	$\frac{120}{360} \times 2 \times \frac{22}{7} \times 7 \text{ or } \frac{60}{360} \times 2 \times \frac{22}{7} \times 14$ $\frac{120}{360} \times 2 \times \frac{22}{7} \times 7 + \frac{60}{360} \times 2 \times \frac{22}{7} \times 14 + 7 + 7 + 14$ $57\frac{1}{3} \text{ or } \frac{172}{3} \text{ or } 57.33$ $\frac{120}{360} \times \frac{22}{7} \times 7^2 \text{ or } \frac{60}{360} \times \frac{22}{7} \times 14^2 \text{ or } \frac{180}{360} \times \frac{22}{7} \times 3.5^2$ $\frac{120}{360} \times \frac{22}{7} \times 7^2 + \frac{60}{360} \times \frac{22}{7} \times 14^2 - \frac{180}{360} \times \frac{22}{7} \times 3.5^2$ $134\frac{3}{4} \text{ or } \frac{539}{4} \text{ or } 134.75$	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p style="text-align: center;">6</p>

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Question	Solution and Mark Scheme	Marks	
<p>11</p> <p>(a)</p> <p>(b)</p>	<p>Sampel space, $S = \{3M, 3H, 7M, 7H, 0M, 0H\}$ Note : Allow one mistake in listing the sample space for P1</p> <p>$\{3M, 7M\}$</p> <p>$\frac{2}{6}$ or $\frac{1}{3}$</p> <p>$\{3M, 3H, 7H, 0H\}$</p> <p>$\frac{4}{6}$ or $\frac{2}{3}$</p> <p><u>Note:</u></p> <p>1. Accept answer without working for K1N1</p>	<p>P2</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p>6</p>

Question	Solution and Mark Scheme	Marks	
12(a)	5 -10	K1 K1	2
(b)	<u>Graph</u> Axes drawn in the correct directions with uniform scale for $-4 \leq x \leq 4$ and $-43 \leq y \leq 53$ All 7 points and *2 point correctly plotted or curve passes through all the points for $-4 \leq x \leq 4$ and $-43 \leq y \leq 53$ A smooth and continuous curve without any straight line passes through all 9 correct points using the given scale for $-4 \leq x \leq 4$ and $-43 \leq y \leq 53$ <u>Note:</u> 1. 7 or 8 points plotted correctly, award K1 2. Ignore curve out of range.	P1 K2 N1	
(c)(i)	$-28 \leq y \leq -26$	P1	2
(ii)	$3.2 \leq x \leq 3.3$	P1	
(d)	Identify equation $y = -10x - 5$ Straight line $y = -10x - 5$ correctly drawn <u>Values of x:</u> $-3.4 \leq x \leq -3.3$ $-0.85 \leq x \leq -0.75$	K1 K1 N1 N1	4
	<u>Note:</u> 1. Allow N marks if values of x are shown on the graph. 2. Values of x obtained by calculation, award N0		

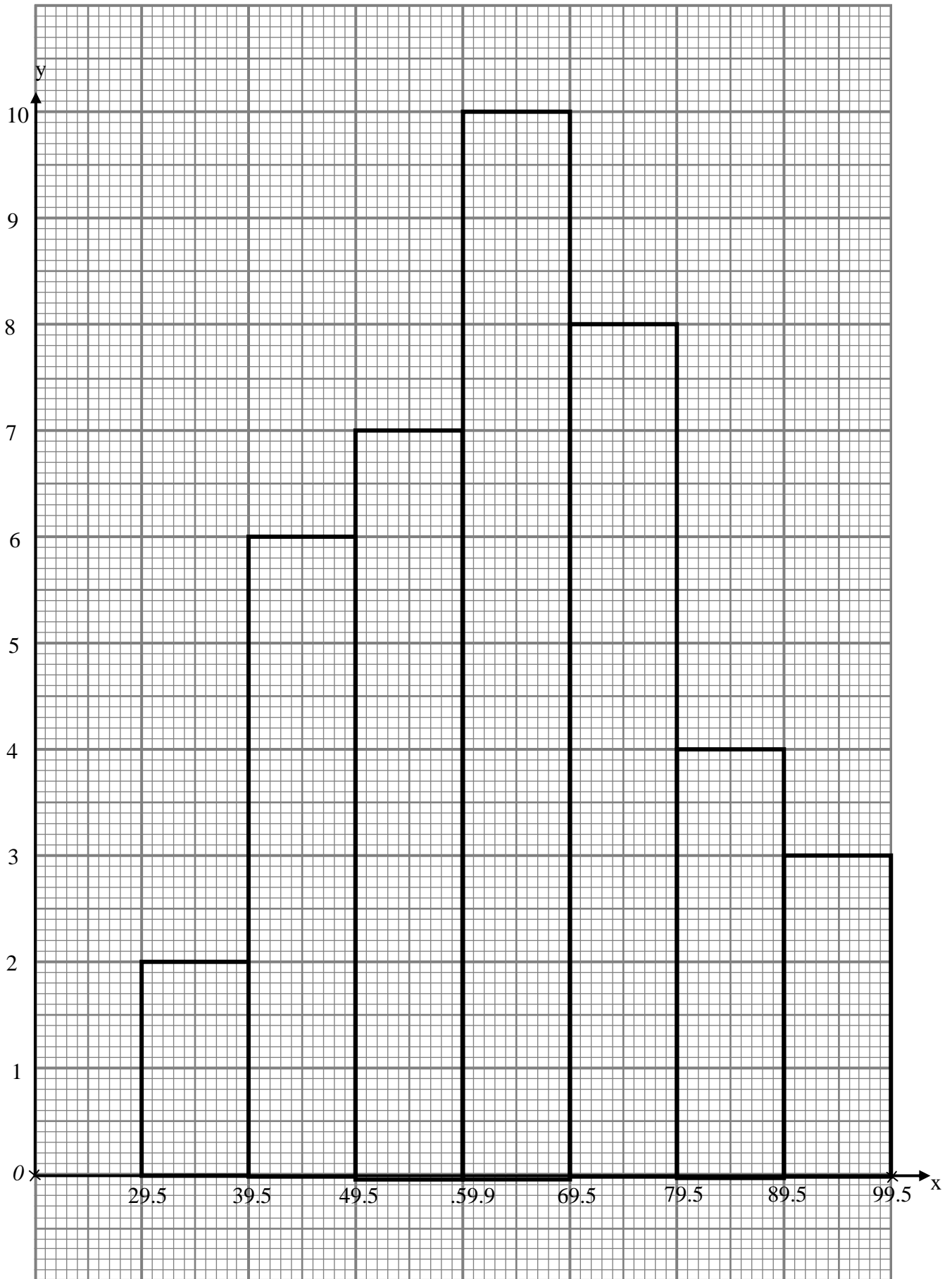
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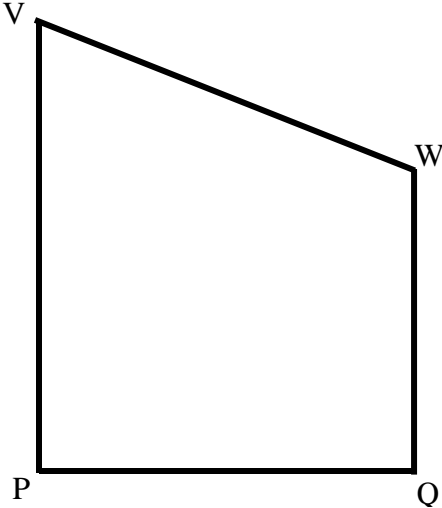


Question	Solution and Mark Scheme	Marks	
13(a)(i)	(8,4)	P1	
(ii)	(8,0) <u>Note:</u> (3, 2) or point (8,0) marked or point (3, 2) marked, award P1	P2	3
(b)(i)(a)	Rotation 90 ⁰ clockwise at centre (5, 1) <u>Note:</u> 1. Rotation 90 ⁰ clockwise award P2 or 2. Rotation at centre (5, 1) award P2 or 3. Rotation award P1	P3	
(b)	Enlargement with scale factor 2 at centre L or (7, 1) <u>Note:</u> 1. Enlargement centre L or (7, 1) <u>or</u> Enlargement scale factor 2, award P2 or 2. Enlargement, award P1 .	P3	
(ii)	$2^2 \times 25.5 - 25.5$ 76.5	K2 N1	8

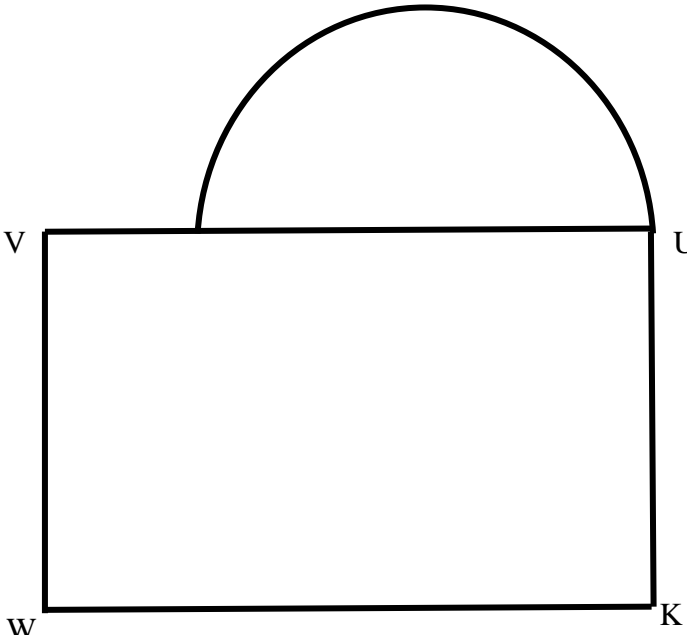
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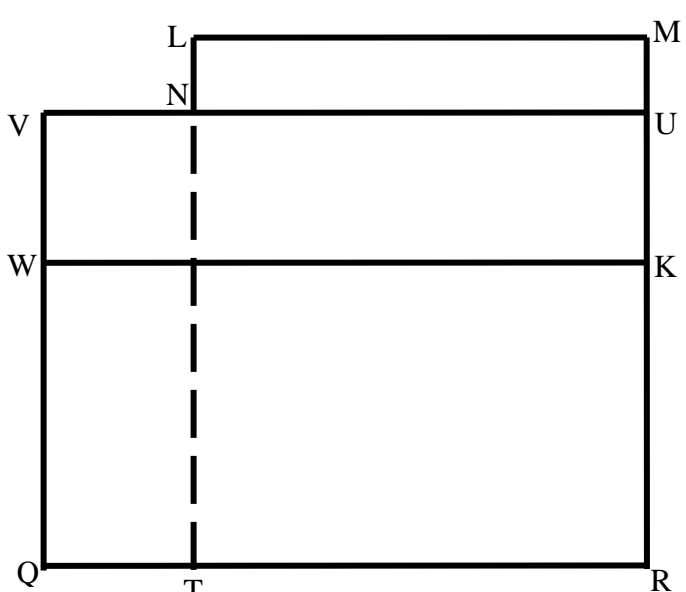
Question	Solution and Mark Scheme	Marks																																	
14(a)	<table border="1" data-bbox="467 317 1052 699"> <thead> <tr> <th></th> <th>Class Interval <i>Selang Kelas</i></th> <th>Midpoint <i>Titik tengah</i></th> <th>Frequency <i>Kekerapan</i></th> </tr> </thead> <tbody> <tr> <td></td> <td>30 – 39</td> <td>34.5</td> <td>2</td> </tr> <tr> <td>II</td> <td>40 – 49</td> <td>44.5</td> <td>6</td> </tr> <tr> <td>III</td> <td>50 – 59</td> <td>54.5</td> <td>7</td> </tr> <tr> <td>IV</td> <td>50 – 69</td> <td>64.5</td> <td>10</td> </tr> <tr> <td>V</td> <td>70 – 79</td> <td>74.5</td> <td>8</td> </tr> <tr> <td>VI</td> <td>80 – 89</td> <td>84.5</td> <td>4</td> </tr> <tr> <td>VII</td> <td>95 – 99</td> <td>94.5</td> <td>3</td> </tr> </tbody> </table> <p data-bbox="391 772 987 808">Midpoint : (II to VII)</p> <p data-bbox="391 846 997 882">frequency : (II to VIII)</p> <p data-bbox="391 884 959 919"><u>Note:</u> Allow one mistake frequency for P1.</p>		Class Interval <i>Selang Kelas</i>	Midpoint <i>Titik tengah</i>	Frequency <i>Kekerapan</i>		30 – 39	34.5	2	II	40 – 49	44.5	6	III	50 – 59	54.5	7	IV	50 – 69	64.5	10	V	70 – 79	74.5	8	VI	80 – 89	84.5	4	VII	95 – 99	94.5	3	P1	
	Class Interval <i>Selang Kelas</i>	Midpoint <i>Titik tengah</i>	Frequency <i>Kekerapan</i>																																
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(b)	$\frac{34.5(*2)+44.5(*6)+54.5(*7)+64.5(*10)+74.5(*8)+62(*4)+67(*3)}{40}$ <p data-bbox="451 1087 509 1123">64.5</p>	K2	3																																
(c)	<p data-bbox="354 1161 493 1197"><u>Histogram</u></p> <p data-bbox="386 1199 1094 1234">Axes drawn in correct directions with uniform scale for</p> <p data-bbox="386 1236 829 1272">$29.5 \leq x \leq 99.5$ and $0 \leq y \leq 10$</p> <p data-bbox="386 1274 1295 1310">Horizontal axes labeled with values of upper boundary or class interval</p> <p data-bbox="386 1350 1081 1386">* 7 bar drawn using upper boundary or class interval.</p> <p data-bbox="375 1425 1016 1461"><u>Note:</u> * 5 or * 6 bar drawn correctly, award K1</p> <p data-bbox="370 1501 607 1537">Correct bar drawn</p>	P1	3																																
(d)	<p data-bbox="386 1570 423 1606">15</p> <p data-bbox="386 1619 987 1654"><u>Note:</u> Do not accept answer without histogram</p>	K1	4																																
			<u>1</u> <u>12</u>																																



Question	Solution and Mark Scheme	Marks	
15(a)	<div style="text-align: center;">  </div> <p>Correct shape with rectangles PQWV. All solid lines.</p> <p>$WQ < QP < PV$</p> <p>Measurements correct to ± 0.2 cm (one way) and all angles at vertices = $90^\circ \pm 1^\circ$</p>		
		K1	
		K1	
		N1	
			3

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Question	Solution and Mark Scheme	Marks	
<p>(b)(i)</p>	<div style="text-align: center;">  </div> <p>Correct shape VWKU and semicircle . All solid lines.</p> <p>$WK > KU = WV$</p> <p>Measurements correct to ± 0.2 cm (one way) and $\angle V, \angle W, \angle K, \angle U = 90^\circ \pm 1^\circ$</p>	<p>K1</p> <p>K1</p> <p>N2</p>	<p>4</p>

Question	Solution and Mark Scheme	Marks	
<p>(ii)</p>	<div style="text-align: center;">  </div> <p>Correct shape with rectangles LMUN , VUKW and WKRQ. All solid lines.</p> <p><u>Note:</u> Ignore line NT</p> <p>N and T joined with dashed line to form rectangle NTRU N and T lies between VQ and UR.</p> <p>$QR = WK = VU > LM > KR = WQ > KU = VW > UM = NL$</p> <p>Measurements correct to ± 0.2 cm (one way) and All angles at vertices of rectangles = $90^\circ \pm 1^\circ$</p>	<p>K1</p> <p>K1</p> <p>K1</p> <p>N2</p>	<p>5</p> <hr/> <p>12</p>

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Question	Solution and Mark Scheme	Marks	
16(a)	(60° N , 140° E) <u>Note:</u> 140° E award P2 OR 140° θ ° E , award P1	P3	3
(b)	60 x 60 3600 <u>Note:</u> 60 or 180 – 60 – 60 seen , award K1	K2	
(c)(i)	(52 + 40) x 60 cos 60 2760 Note : (52 + 40) or cos 60 seen award K1	N1	3
(ii)	(30 x 60) ÷ 250 7.2 Note : (*30 x 60)) ÷ 250 award K1	K2	3
			12