

**1449/1 & 2
Matematik
Kertas 1/2
2019**



JABATAN PELAJARAN TERENGGANU

MPP 3 / TAHUN 2019

SIJIL PELAJARAN MALAYSIA

MATEMATIK 1449/1/2

Kertas 1 & 2

PERATURAN PEMARKAHAN

$$\text{Markah} = \frac{\text{Kertas 1} + \text{Kertas 2}}{140} \times 100$$

Peraturan Pemarkahan ini mengandungi 16 halaman bercetak

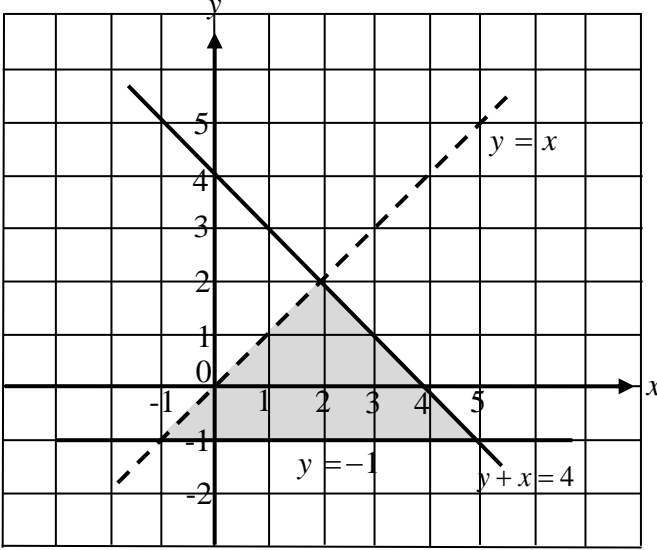
SKEMA PERMARKAHAN
MPP 3 / TAHUN 2019
SIJIL PELAJARAN MALAYSIA

MATEMATIK KERTAS 1

1	C	11	D	21	C	31	A
2	B	12	D	22	B	32	D
3	C	13	B	23	C	33	B
4	C	14	C	24	D	34	A
5	B	15	B	25	B	35	D
6	A	16	D	26	D	36	A
7	A	17	C	27	C	37	B
8	C	18	A	28	C	38	D
9	B	19	A	29	B	39	A
10	B	20	C	30	D	40	C

MATEMATIK KERTAS 2

Bahagian A

Soalan	Peraturan Pemarkahan	Markah	
1		K1 P2	<hr style="width: 50px; margin: auto;"/> 3
2	<p>$\angle MNP$ atau $\angle PNM$</p> <p>$\tan \theta = \frac{4}{8}$ atau setara</p> <p>26.6° atau 26.57° atau $26^\circ 34'$</p>		P1 K1 N1

Soalan	Peraturan Permarkahan	Markah	
3	$3x^2 - 2x - 8 = 0$ or equivalent $(x-2)(3x+4) = 0$ $x = 2, \quad x = -\frac{4}{3}$	K1	
		K1	
		N1N1	<u>4</u>
4	$\frac{1}{2} \times (6+10) \times 7 \times 7$ $\frac{2}{3} \times \frac{22}{7} \times 3.5^3$ or equivalent $\frac{1}{2} \times (6+10) \times 7 \times 7 - \frac{2}{3} \times \frac{22}{7} \times 3.5^3$ 302.17 or $302\frac{1}{6}$ or $\frac{1813}{6}$	K1	
		K1	
		K1	
		N1	<u>4</u>
5	$x+3y=-3$ or $x=9+3y$ or equivalent $-6y=12$ or equivalent $x=3$ $y=-2$	K1	
		K1	
		N1	
		N1	<u>4</u>
6(a)	Some/Sebilangan	P1	
(b)	If Set A has 3 elements then it has 8 subsets <i>Jika Set A mempunyai 3 unsur, maka Set A mempunyai 8 subset</i> If Set A has 8 subsets the it has 3 elements <i>Jika Set A mempunyai 8 subset, maka Set A mempunyai 3 unsur</i>	P1	
		P1	
(c)	$2 + 2n$ $n = 0, 1, 2, 3, \dots$ or $(1 + n)$ $(n = 0, 1, 2, 3, \dots)$ or $(2n)$ $(n = 1, 2, 3, 4, \dots)$ or equivalent	K1	
		K1	<u>5</u>

Soalan	Peraturan Permarkahan	Markah	
<p>7 (a)</p> <p>(b)</p>	$m_{AB} = \frac{2-1}{0-3} = -\frac{1}{3}$ $4 = -\frac{1}{3}(6) + c$ $y = -\frac{1}{3}x + 6$ $0 = -\frac{1}{3}x + 6$ $x\text{-intercept} = 18$	<p>P1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	<p><u>5</u></p>
<p>8</p>	$20p + 12q = 402$ $23p + 14q = 465$ $\begin{pmatrix} 20 & 12 \\ 23 & 14 \end{pmatrix} \begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 402 \\ 465 \end{pmatrix}$ $\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{(20)(14) - (12)(23)} \begin{pmatrix} 14 & -12 \\ -23 & 20 \end{pmatrix} \begin{pmatrix} 402 \\ 465 \end{pmatrix} \text{ or}$ $\begin{pmatrix} p \\ q \end{pmatrix} = * \begin{pmatrix} \text{Inverse} \\ \text{matrix} \end{pmatrix} \begin{pmatrix} 402 \\ 465 \end{pmatrix}$ $p = 12$ $q = 13.5$ <p>Notes:</p> <ol style="list-style-type: none"> Do not accept $* \begin{pmatrix} \text{Inverse} \\ \text{matrix} \end{pmatrix} = \begin{pmatrix} 20 & 12 \\ 23 & 14 \end{pmatrix} \text{ or}$ $* \begin{pmatrix} \text{Inverse} \\ \text{matrix} \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 12 \\ 13.5 \end{pmatrix}$ as final answer, award N1 Do not accept any solution solved not using matrix method. 	<p>P1</p> <p>P1</p> <p>P1</p> <p>K1</p> <p>N1</p> <p>N1</p>	<p><u>6</u></p>

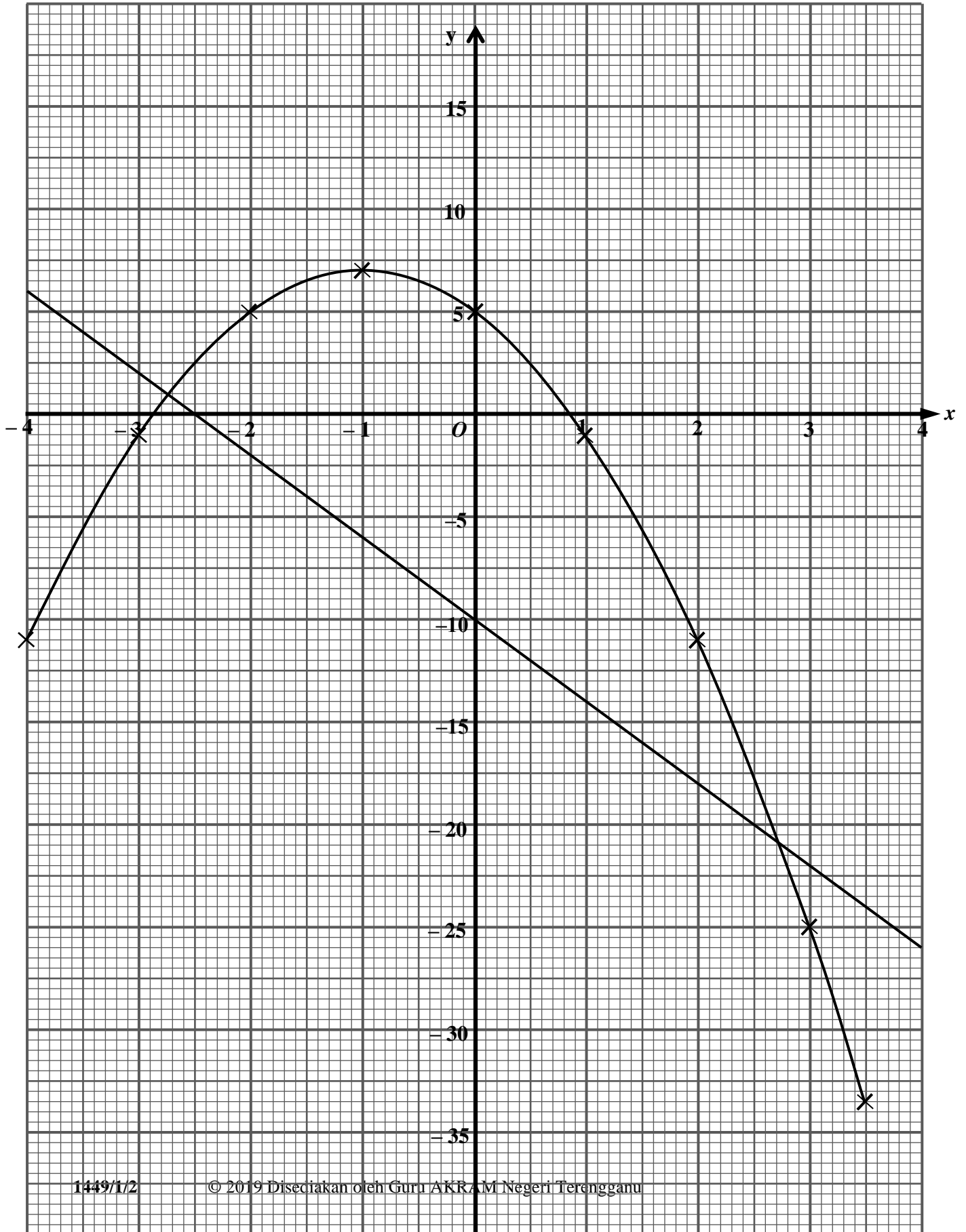
Soalan	Peraturan Permarkahan	Markah		
<p>9 (a)</p> <p>$\frac{90}{360} \times 2 \times \frac{22}{7} \times 14$ <i>or</i> $\frac{30}{360} \times 2 \times \frac{22}{7} \times 7$</p> <p>$\frac{90}{360} \times 2 \times \frac{22}{7} \times 14 + \frac{30}{360} \times 2 \times \frac{22}{7} \times 7 + 14 + 7 + 7$</p> <p>$\frac{161}{3}$ <i>or</i> $53\frac{2}{3}$ <i>or</i> 53.67</p> <p>(b)</p> <p>$\frac{90}{360} \times \frac{22}{7} \times 14^2$ <i>or</i> $\frac{30}{360} \times \frac{22}{7} \times 7^2$ <i>or</i> 7×7</p> <p>$\left(\frac{90}{360} \times \frac{22}{7} \times 14^2 - 7 \times 7 \right) + \left(\frac{30}{360} \times \frac{22}{7} \times 7^2 \right)$</p> <p>$\frac{707}{6}$ <i>or</i> $117\frac{5}{6}$ <i>or</i> 117.83</p>		K1	<hr style="width: 100%;"/> 6	
		K1		
		N1		
		K1		
K1	N1	<hr style="width: 100%;"/> 6		
<p>10 (a)</p> <p>S = {(A,B), (A,C), (A,D), (A,E), (B,A), (B,C), (B,D), (B,E), (C,A), (C,B), (C,D), (C,E), (D,A), (D,B), (D,C), (D,E), (E,A), (E,B), (E,C), (E,D)}</p> <p>Note : Allow two mistakes for P1</p> <p>(b)</p> <p>i) {(A,D), (A,E), (B,D), (B,E), (C,D), (C,E), (D,A), (D,B), (D,C), (D,E), (E,A), (E,B), (E,C), (E,D)}</p> <p>$P(A) = \frac{14}{20}$ <i>or</i> $\frac{7}{10}$</p> <p>ii) {(A,D), (A,E), (B,D), (B,E), (C,D), (C,E), (D,A), (D,B), (D,C), (E,A), (E,B), (E,C)}</p> <p>$P(A) = \frac{12}{20}$ <i>or</i> $\frac{3}{5}$</p>			P2	<hr style="width: 100%;"/> 6
			K1	
			N1	
		K1		
N1	N1	<hr style="width: 100%;"/> 6		

Soalan	Peraturan Permarkahan	Markah	
<p>11 (a) 20</p> <p>(b) $\frac{15-0}{10-0}$ or equivalent</p> <p>$\frac{3}{2}$ or 1.5</p> <p>(c) $\left(\frac{1}{2} \times 10 \times 15\right) + (20 \times 15) + \frac{1}{2}(15 + 25)(T - 30) = 775$ or equivalent</p> <p><u>Notes:</u> $\frac{1}{2} \times 10 \times 15$ or 20×15 or $\frac{1}{2}(15 + 25)(T - 30)$ award K1</p> <p>T = 50</p>		<p>P1</p> <p>K1</p> <p>N1</p> <p>K2</p> <p>N1</p>	<p>6</p>

Bahagian B

Soalan	Peraturan Permarkahan	Markah	
<p>12 (a)</p> <p>(b)</p> <p>(c)(i)</p> <p>(ii)</p> <p>(d)</p>	<p>$y = 5$, $y = -25$</p> <p><u>Graph</u> : Axis drawn in correct directions with uniform scales for $-4 \leq x \leq 3.5$</p> <p>All 7 points and *2 points correctly plotted or curve passes through all the points for $-4 \leq x \leq 3.5$.</p> <p><u>Note</u>: 1. 8 or 7 points correctly plotted, award K1 2. Ignore curve out of range.</p> <p>Smooth and continuous curve without any straight line passing through all 9 correct points using the given scales for $-4 \leq x \leq 3.5$</p> <p>$6 \leq y \leq 7$</p> <p>$2.4 \leq x \leq 2.6$</p> <p>Straight line $y = -10 - 4x$ correctly drawn. (Checked any two points plotted or straight line passes through any two of the $(-1, -6)$, $(0, -10)$ $(2, -18)$,... accurate to $\pm \frac{1}{2}$ square grid vertically)</p> <p><u>Note</u>: Identify equation $y = -10 - 4x$ award K1</p> <p>$-2.8 \leq x \leq -2.6$ $2.6 \leq x \leq 2.8$</p> <p><u>NOTE</u>:</p> <p>1. Allow P mark or N mark if values of x and y are shown on graph 2. Values of x and of y obtained by calculations, award P0 or N0. 3. Values of x and of y obtained from wrong graph, award P0</p>	<p>K1 K1</p> <p>P1</p> <p>K2</p> <p>N1</p> <p>P1</p> <p>P1</p> <p>K2</p> <p>N1 N1</p>	<p>2</p> <p>4</p> <p>2</p> <p>4</p> <p>12</p>

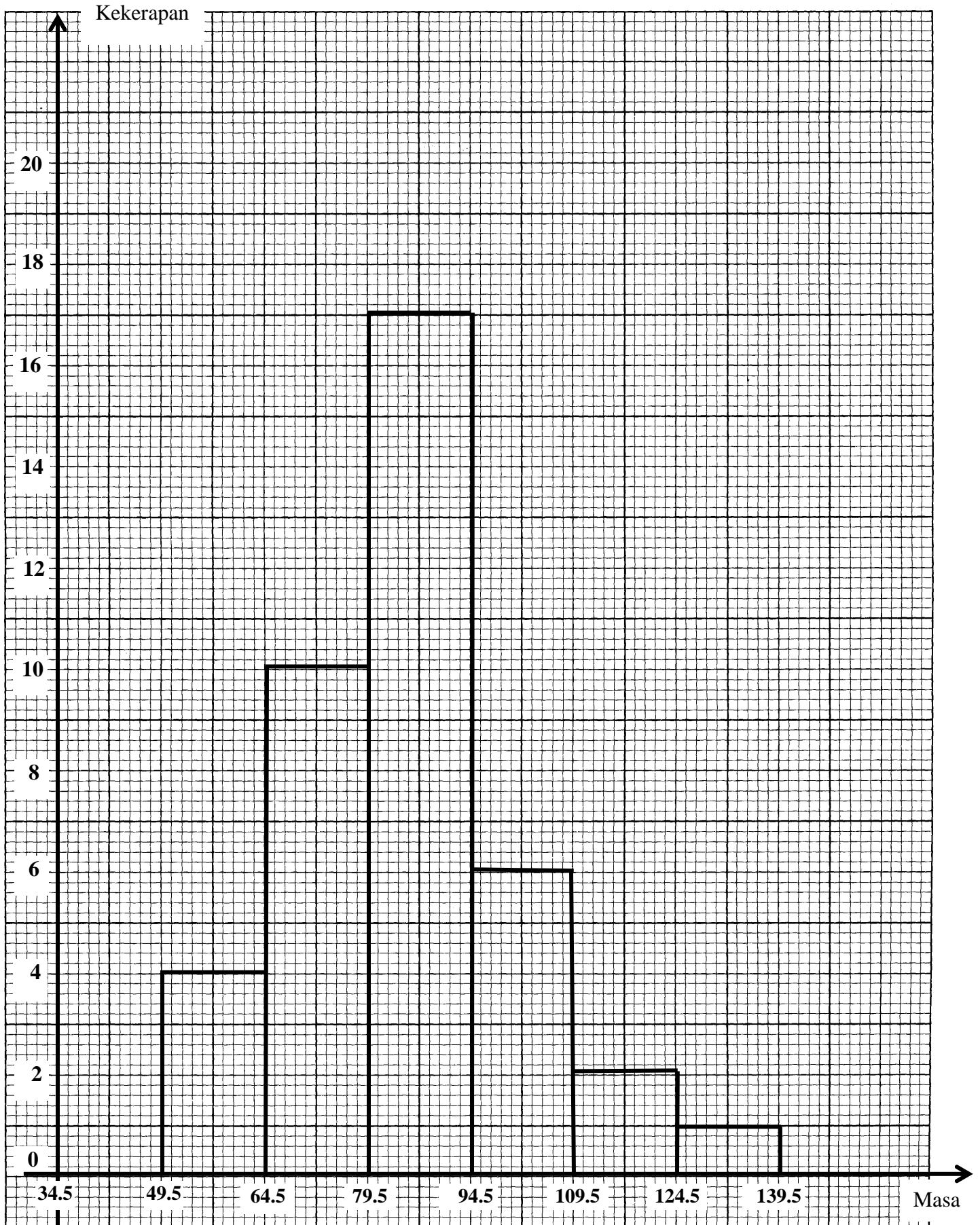
Graph for Question 12/Graf untuk Soalan 12



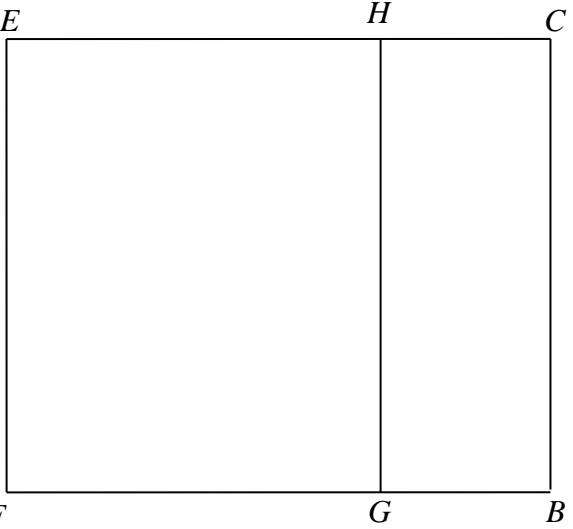
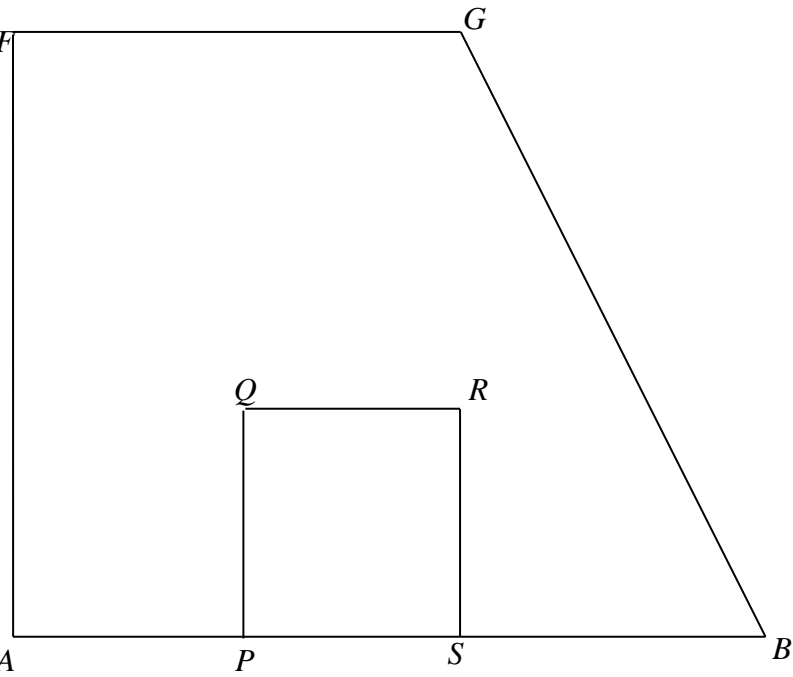
Soalan	Peraturan Permarkahan	Markah	
13(a)(i)	(4, 9) <u>Note:</u> (4, 9) marked on diagram <i>or</i> (6, 1) <i>seen or</i> (6, 1) marked on diagram, award P1.	P2	
(ii)	(6, 5) <u>Note :</u> (6, 5) marked on the diagram or (3, 6) <i>seen or</i> (3, 6) marked on diagram, award P1	P2	4
(b)(i)	(a) U = Reflection in the line $y = 6$ // <i>Pantulan pada garis $y = 6$.</i> <u>Note:</u> Reflection // <i>Pantulan</i> , award P1 (b) V = Enlargement, scale factor $\frac{1}{2}$, centre $E(1, 5)$ // <i>Pembesaran, faktor skala $\frac{1}{2}$, pada pusat $E(1, 5)$</i> <u>Note:</u> 1. Enlargement, scale factor 2 // <i>Pembesaran, faktor skala $\frac{1}{2}$, award P2</i> 2. Enlargement, centre $E(1, 5)$ // <i>Pembesaran, pada pusat $E(1, 5)$, award P2</i>	P2 P3	
(ii)	$210 - * \left(\frac{1}{2}\right)^2 \times 210$ $* \left(\frac{1}{2}\right)^2 \times 210$ award K1 157.5	K2 N1	 <u>12</u>

Soalan	Peraturan Permarkahan	Markah																																				
<p>14 (a)</p>	<table border="1"> <thead> <tr> <th data-bbox="370 247 623 279">I</th> <th data-bbox="623 247 768 279">II</th> <th data-bbox="768 247 946 279">III</th> <th data-bbox="946 247 1159 279">IV</th> </tr> <tr> <th data-bbox="370 289 623 363">Masa (saat)</th> <th data-bbox="623 289 768 363">Titik tengah</th> <th data-bbox="768 289 946 363">Kekerapan</th> <th data-bbox="946 289 1159 363">Kekerapan Longgokan</th> </tr> </thead> <tbody> <tr> <td data-bbox="370 363 623 394">35 – 49</td> <td data-bbox="623 363 768 394">42</td> <td data-bbox="768 363 946 394">0</td> <td data-bbox="946 363 1159 394">0</td> </tr> <tr> <td data-bbox="370 394 623 426">50 – 64</td> <td data-bbox="623 394 768 426">57</td> <td data-bbox="768 394 946 426">4</td> <td data-bbox="946 394 1159 426">4</td> </tr> <tr> <td data-bbox="370 426 623 457">65 – 79</td> <td data-bbox="623 426 768 457">72</td> <td data-bbox="768 426 946 457">10</td> <td data-bbox="946 426 1159 457">14</td> </tr> <tr> <td data-bbox="370 457 623 489">80 – 94</td> <td data-bbox="623 457 768 489">87</td> <td data-bbox="768 457 946 489">17</td> <td data-bbox="946 457 1159 489">31</td> </tr> <tr> <td data-bbox="370 489 623 520">95 – 109</td> <td data-bbox="623 489 768 520">102</td> <td data-bbox="768 489 946 520">6</td> <td data-bbox="946 489 1159 520">37</td> </tr> <tr> <td data-bbox="370 520 623 552">110 – 124</td> <td data-bbox="623 520 768 552">117</td> <td data-bbox="768 520 946 552">2</td> <td data-bbox="946 520 1159 552">39</td> </tr> <tr> <td data-bbox="370 552 623 583">125 – 139</td> <td data-bbox="623 552 768 583">132</td> <td data-bbox="768 552 946 583">1</td> <td data-bbox="946 552 1159 583">40</td> </tr> </tbody> </table>	I	II	III	IV	Masa (saat)	Titik tengah	Kekerapan	Kekerapan Longgokan	35 – 49	42	0	0	50 – 64	57	4	4	65 – 79	72	10	14	80 – 94	87	17	31	95 – 109	102	6	37	110 – 124	117	2	39	125 – 139	132	1	40	<p>P1 P1 P1 P1</p>
	I	II	III	IV																																		
	Masa (saat)	Titik tengah	Kekerapan	Kekerapan Longgokan																																		
	35 – 49	42	0	0																																		
	50 – 64	57	4	4																																		
	65 – 79	72	10	14																																		
	80 – 94	87	17	31																																		
	95 – 109	102	6	37																																		
	110 – 124	117	2	39																																		
	125 – 139	132	1	40																																		
<p>Lajur I, II, III, IV (Semua betul)</p>	<p>P1 P1 P1 P1</p>																																					
<p>(b) $\frac{4 \times 57 + 10 \times 72 + 17 \times 87 + 6 \times 102 + 2 \times 117 + 1 \times 132}{40}$</p>	<p>K2</p>																																					
<p>$85.13 @ 85\frac{1}{8} @ \frac{681}{8}$</p>	<p>N1</p>																																					
<p>(c) Histogram: Paksi-paksi dilukis dengan arah yang betul, skala seragam bagi $34.5 \leq x \leq 139.5$ dan $0 \leq y \leq *18$, paksi-x dilabel menggunakan sempadan bawah atau sempadan atas atau titik tengah.</p>	<p>P1</p>																																					
<p>Semua *7 bar dilukis betul</p>	<p>K2</p>																																					
<p><u>Nota:</u> 1) *5 atau 6* bar dilukis betul, berikan K1. 2) Jika skala lain digunakan, tolak 1 markah KN yang diperolehi.</p>																																						
<p>Histogram yang betul menggunakan skala yang diberikan</p>	<p>N1</p>																																					
<p>(d) 14 pelajar</p>	<p>P1</p>																																					
		<hr/> 12																																				

Graph for Question 14
Graf untuk Soalan 14



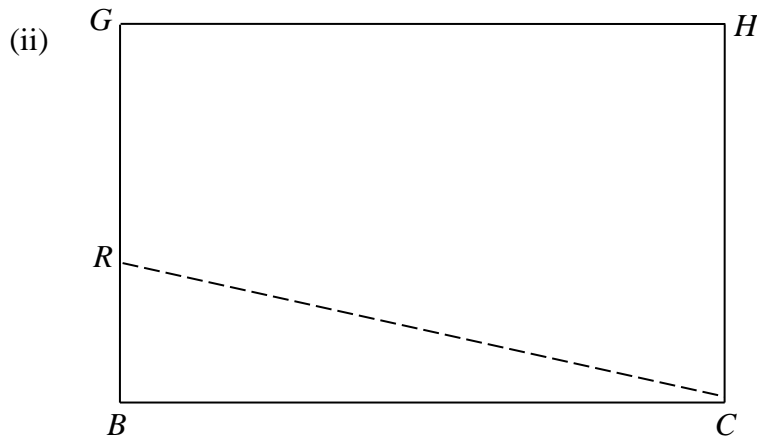
Soalan	Peraturan Permarkahan	Markah	
	<p><u>Note:</u></p> <ol style="list-style-type: none"> (1) Accept drawing only (not sketch) (2) Accept diagrams without labels and ignore wrong labels. (3) Accept correct rotation of diagrams. (4) Lateral inversions are not accepted. (5) If more than 1 diagram are drawn, award mark to the correct ones only. (6) For extra lines (dotted/dashed or solid) except construction lines, no KN mark is awarded. (7) If other scales are used with accuracy of ± 0.2 cm one way, deduct 1 mark from the N mark obtained, for each part attempted. (8) Accept small gaps or extensions at the corners. For each part attempted: <ol style="list-style-type: none"> (i) If $0.1 \text{ cm} \leq \text{small gaps/extension} \leq 0.4 \text{ cm}$, deduct 1 mark from N mark obtained. (ii) If small gaps/extensions $> 0.4 \text{ cm}$, no N mark is awarded. (9) If the construction line cannot be differentiated from the actual lines: <ol style="list-style-type: none"> (i) <u>Dotted line</u> If outside the diagram, award the N mark. If inside the diagram, award N0. (ii) <u>Solid line</u> If outside the diagram, no KN mark is awarded. (10) For double lines, non –collinear lines, bold lines or crooked lines, deduct 1 mark from the N mark obtained, for each part attempted. (11) If drawn on graph paper, no KN mark is awarded. 		

<p>15(a)</p>	 <p>Correct shape with rectangle $EFGH$ and $HCBG$. All solid lines,</p> <p>$FB = BC > FG > HC$</p> <p>Measurements correct to ± 0.2 cm (one way) and all angles at vertices = $90^\circ \pm 1^\circ$</p>	<p>K1</p> <p>K1</p> <p>N1</p>	
<p>(b)</p>	<p>i)</p> 		

Correct shape with prism $FGBA$ and square $PQRS$.
All solid lines.

$$GB > BA > AF > FG > AP = PQ = QR = RS = SB$$

Measurements correct to ± 0.2 cm (one way) and all angles
at vertices = $90^\circ \pm 1^\circ$



Correct shape with rectangle $BGHC$.
All solid lines.
(Ignore CR)

$C - R$ joined by a dashed line to form triangle RCB .

$$BC > HC > GR > RB$$

Measurements correct to ± 0.2 cm (one way) and all angles
at vertices = $90^\circ \pm 1^\circ$

K1

K1

N2

K1

K1

K1

N2

 12

Soalan	Peraturan Permarkahan	Markah	
16(a) (i)	105°W Note : 105° or θ° W award P1	P2	
(ii)	50° N Note : kos 50° or θ° N award P1	P2	4
(b)	100° × 60' 6000 n.m	K1	
(c)	180° × kos 50° × 60' Note : 180° or kos 50° seen award K1 6942.11 n.m	K2	
(d)	$\frac{(180^\circ - 100^\circ) \times 60'}{640}$ Note : 4800 or (180° - 100°) seen award K1 7 hours 30 minutes	K2	
		N1	3
			<hr/> 12

SKEMA PEMARKAHAN TAMAT