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

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

Peraturan Pemarkahan ini mengandungi 16 halaman bercetak

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SKEMA PERMARKAHAN

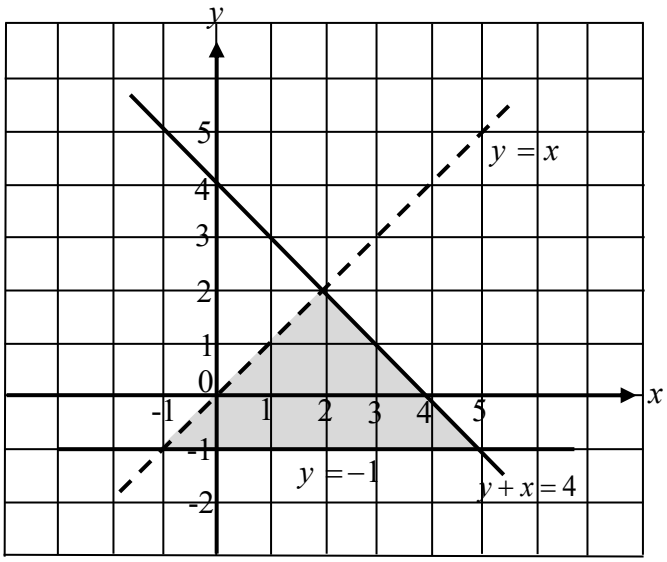
MPP 3 / TAHUN 2019
SIJIL PELAJARAN MALAYSIA

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**	**3**
2	∠*MNP atau* ∠*PNM* Tan θ = $\frac{4}{8}$ *atau* setara 26.6° *atau* 26.57° *atau* 26°34’	**P1** **K1** **N1**	**3**

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

Soalan	Peraturan Permarkahan	Markah	
7 *(a)*	$m_{AB} = \frac{2-1}{0-3} = -\frac{1}{3}$	**P1**	
	$4 = -\frac{1}{3}(6) + c$	**K1**	
	$y = -\frac{1}{3}x + 6$	**N1**	
(b)	$0 = -\frac{1}{3}x + 6$	**K1**	
	x-intercept = 18	**N1**	**5**
8	$20p + 12q = 402$ $23p + 14q = 465$	**P1** **P1**	
	$\begin{pmatrix} 20 & 12 \\ 23 & 14 \end{pmatrix}\begin{pmatrix} p \\ q \end{pmatrix} = \begin{pmatrix} 402 \\ 465 \end{pmatrix}$	**P1**	
	$\begin{pmatrix} p \\ q \end{pmatrix} = \frac{1}{(20)(14)-(12)(23)}\begin{pmatrix} 14 & -12 \\ -23 & 20 \end{pmatrix}\begin{pmatrix} 402 \\ 465 \end{pmatrix}$ *or*	**K1**	
	$\begin{pmatrix} p \\ q \end{pmatrix} = *\begin{pmatrix} Inverse \\ matrix \end{pmatrix}\begin{pmatrix} 402 \\ 465 \end{pmatrix}$		
	$p = 12$ $q = 13.5$	**N1** **N1**	**6**
	Notes: 1. Do not accept $*\begin{pmatrix} Inverse \\ matrix \end{pmatrix} = \begin{pmatrix} 20 & 12 \\ 23 & 14 \end{pmatrix}$ *or* $*\begin{pmatrix} Inverse \\ matrix \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ 2. $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 12 \\ 13.5 \end{pmatrix}$ as final answer, award N1 3. Do not accept any solution solved not using matrix method.		

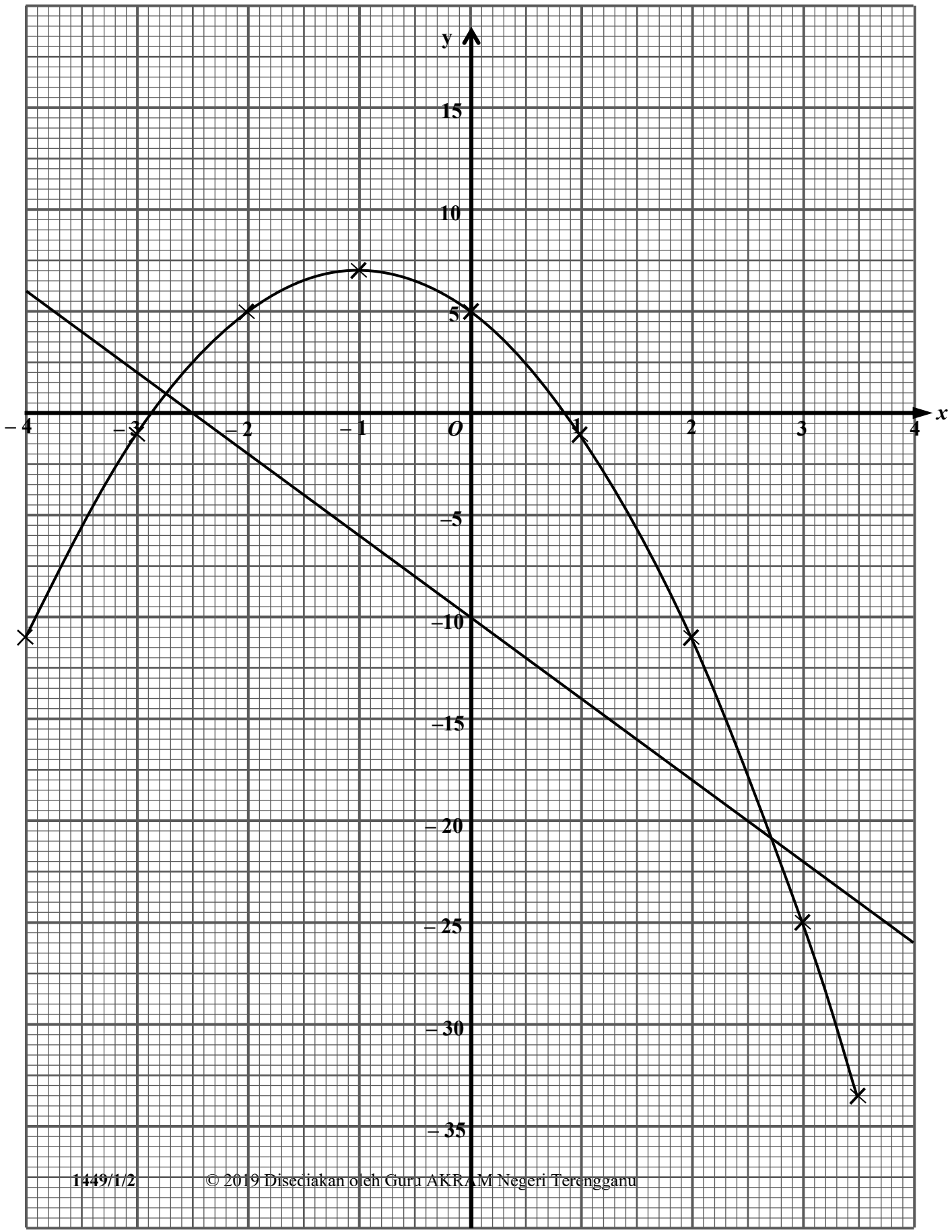
Soalan	Peraturan Permarkahan	Markah	
9 *(a)*	$\frac{90}{360}\times 2\times\frac{22}{7}\times 14$ *or* $\frac{30}{360}\times 2\times\frac{22}{7}\times 7$	**K1**	
	$\frac{90}{360}\times 2\times\frac{22}{7}\times 14 + \frac{30}{360}\times 2\times\frac{22}{7}\times 7 + 14 + 7 + 7$	**K1**	
	$\frac{161}{3}$ *or* $53\frac{2}{3}$ *or* 53.67	**N1**	
(b)	$\frac{90}{360}\times\frac{22}{7}\times 14^2$ *or* $\frac{30}{360}\times\frac{22}{7}\times 7^2$ *or* 7 x 7	**K1**	
	$\left(\frac{90}{360}\times\frac{22}{7}\times 14^2 - 7\times 7\right)+\left(\frac{30}{360}\times\frac{22}{7}\times 7^2\right)$	**K1**	
	$\frac{707}{6}$ or $117\frac{5}{6}$ or 117.83	**N1**	**6**
10 *(a)*	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)} Note : Allow two mistakes for **P1**	**P2**	
(b)	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)}	**K1**	
	P(A) = $\frac{14}{20}$ *or* $\frac{7}{10}$	**N1**	
	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)}	**K1**	
	P(A) = $\frac{12}{20}$ *or* $\frac{3}{5}$	**N1**	**6**

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

Bahagian B

Soalan	Peraturan Permarkahan	Markah	
12 *(a)*	$y = 5$, $y = -25$	**K1** **K1**	**2**
(b)	Graph : Axis drawn in correct directions with uniform scales for $-4 \le x \le 3.5$	**P1**	
	All 7 points and *2 points correctly plotted or curve passes through all the points for $-4 \le x \le 3.5$.	**K2**	
	Note: 1. 8 or 7 points correctly plotted, award K1 2. Ignore curve out of range.		
	Smooth and continuous curve without any straight line passing through all 9 correct points using the given scales for $-4 \le x \le 3.5$	**N1**	**4**
(c)(i)	$6 \le y \le 7$	**P1**	
(ii)	$2.4 \le x \le 2.6$	**P1**	**2**
(d)	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)	**K2**	
	Note: Identify equation $y = -10 - 4x$ award K1		
	$-2.8 \le x \le -2.6$ $2.6 \le x \le 2.8$	**N1** **N1**	
	NOTE: 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**		**4** **12**

Graph for Question 12/*Graf untuk Soalan* 12



Soalan	Peraturan Permarkahan	Markah	
13*(a)*(i)	(4, 9) Note: (4, 9) marked on diagram *or* (6, 1) *seen or* (6, 1) marked on diagram, award P1.	**P2**	
(ii)	(6, 5) Note : (6, 5) marked on the diagram or (3, 6) *seen or* (3, 6) marked on diagram, award P1	**P2**	**4**
(b)(i)	*(a)* **U** = Reflection in the line $y = 6$ // *Pantulan pada garis* $y = 6$. Note: Reflection // *Pantulan,* award P1	**P2**	

	(b) **V** = Enlargement, scale factor $\frac{1}{2}$, centre E (1, 5) //
	Pembesaran, faktor skala $\frac{1}{2}$*, pada pusat* E (1, 5)
	
	Note:
	1. Enlargement, scale factor 2 // *Pembesaran, faktor skala* $\frac{1}{2}$, award P2
	2. Enlargement, centre E (1, 5) // *Pembesaran, pada pusat* E (1, 5), award 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**	**12**

Soalan	Peraturan Permarkahan	Markah	
14 *(a)*			

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

Lajur
I, **P1**
II, **P1**
III, **P1**
IV (Semua betul) **P1**

(b) $\dfrac{4\times57+10\times72+17\times87+6\times102+2\times117+1\times132}{40}$ **K2**

85.13 @ $85\frac{1}{8}$ @ $\frac{681}{8}$ **N1**

(c) Histogram:

Paksi-paksi dilukis dengan arah yang betul, skala seragam bagi $34.5 \le x \le 139.5$ dan $0 \le y \le$ *18, paksi-x dilabel menggunakan sempadan bawah atau sempadan atas atau titik tengah. **P1**

Semua *7 bar dilukis betul **K2**

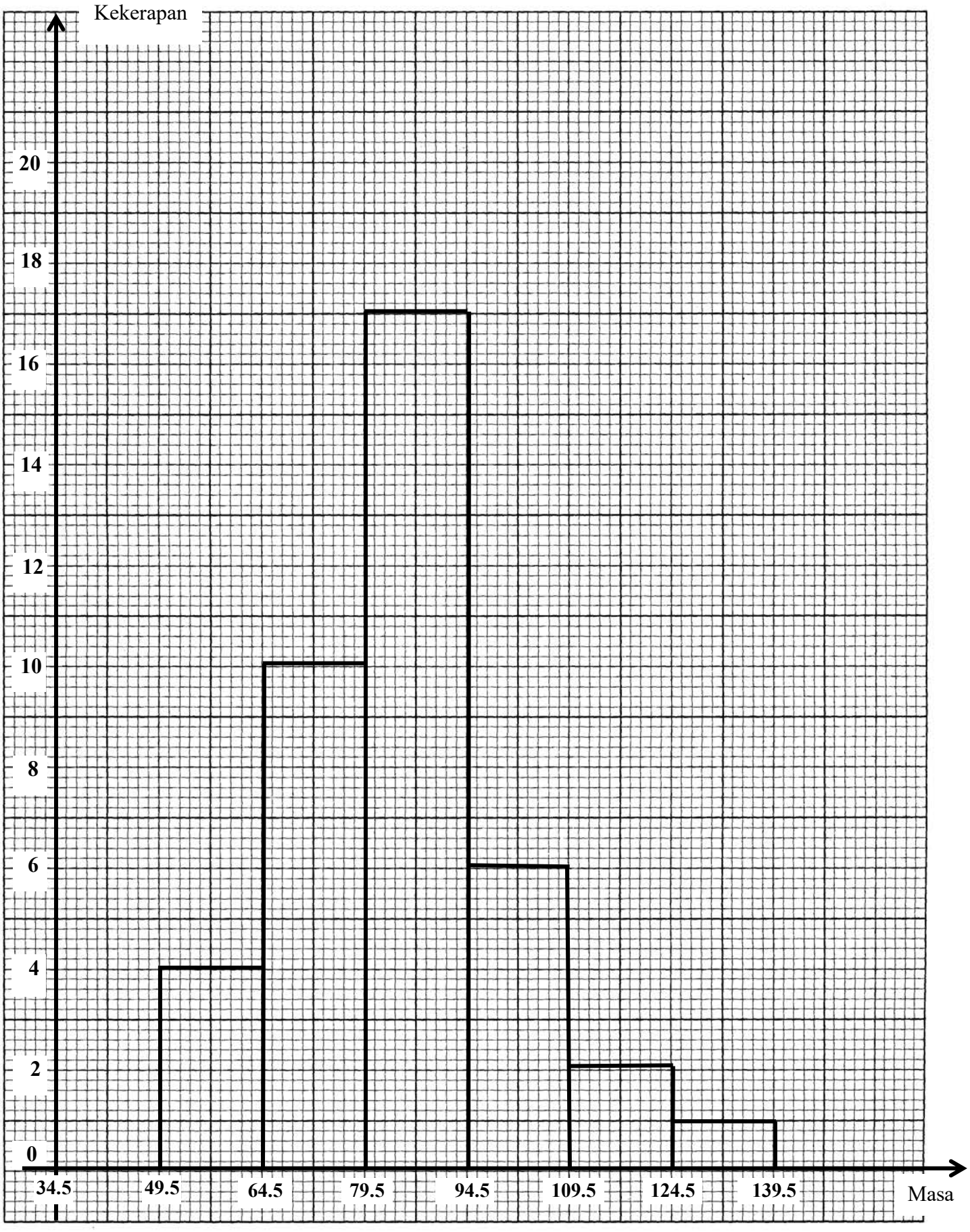
Nota: 1) *5 atau 6* bar dilukis betul, berikan K1.
2) Jika skala lain digunakan, tolak 1 markah KN yang diperolehi.

Histogram yang betul menggunakan skala yang diberikan **N1**

(d) 14 pelajar **P1**

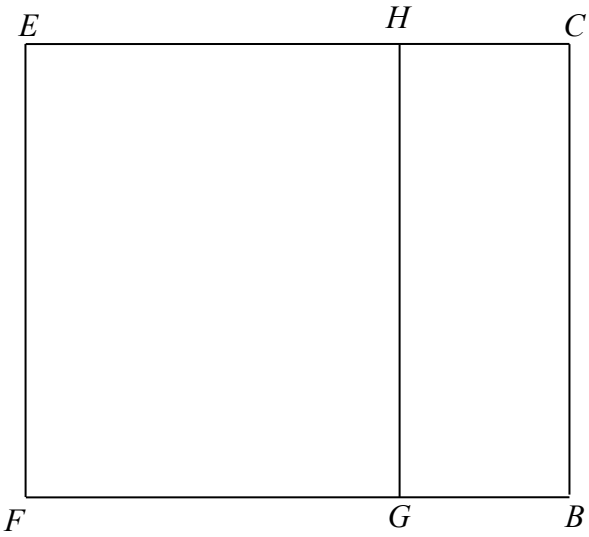
12

Graph for Question 14
Graf untuk Soalan 14



Soalan	Peraturan Permarkahan	Markah	
	Note: (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 $\pm$ 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: (i) If 0.1 cm $\leq$ small gaps/extension $\leq$ 0.4 cm, deduct 1 mark from **N** mark obtained. (ii) If small gaps/extensions > 0.4 cm, no N mark is awarded. (9) If the construction line cannot be differentiated from the actual lines: (i) Dotted line If outside the diagram, award the **N** mark. If inside the diagram, award **N0**. (ii) Solid line 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.		

15*(a)*



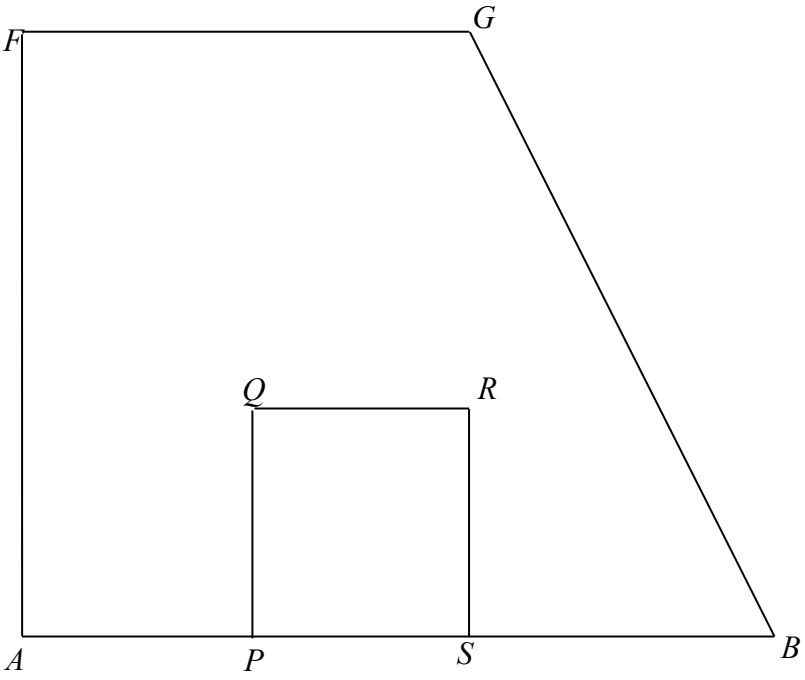
Correct shape with rectangle *EHGF*and *HCBG.*
All solid lines, **K1**

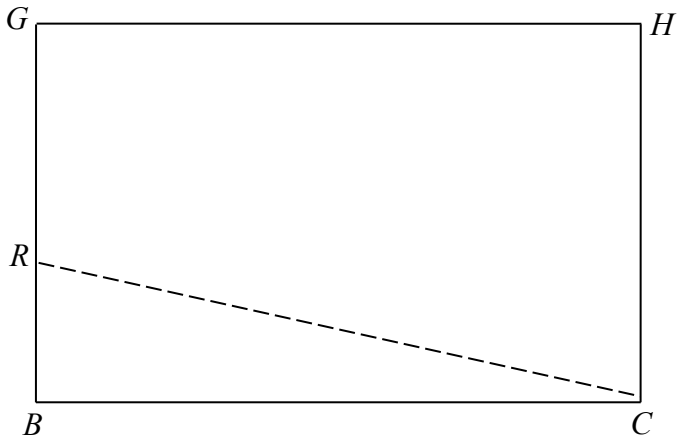
$FB = BC > FG > HC$ **K1**

Measurements correct to $\pm$ 0.2 cm (one way) and all angles at vértices $= 90° \pm 1°$ **N1**

(b)

i)



	Correct shape with prism *FGBA* and square *PQRS.* All solid lines.	**K1**	
	GB > *BA* > *AF* > *FG*> *AP*= *PQ* = *QR* = *RS* = *SB*	**K1**	
	Measurements correct to $\pm$ 0.2 cm (one way) and all angles at vértices = 90° ± 1°	**N2**	
(ii)			
	Correct shape with rectangle *BGHC.* All solid lines. (Ignore *CR*)	**K1**	
	C – *R* joined by a dashed line to form triangle *RCB.*	**K1**	
	BC > *HC* > *GR* > *RB*	**K1**	
	Measurements correct to $\pm$ 0.2 cm (one way) and all angles at vértices = 90° ± 1°	**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)	$100° \times 60'$	**K1**	
	6000 n.m	**N1**	**2**
(c)	$180° \times kos\ 50° \times 60'$ Note : 180° *or* kos 50° seen award K1	**K2**	
	6942.11 n.m	**N1**	**3**
(d)	$\frac{(180° - 100°) \times 60'}{640}$ Note : 4800 *or* (180° - 100°) seen award K1	**K2**	
	7 hours 30 minutes	**N1**	**3**
			12

SKEMA PEMARKAHAN TAMAT

