



**PENTAKSIRAN DIAGNOSTIK AKADEMIK
SEKOLAH BERASRAMA PENUH 2019**

**PEPERIKSAAN PERCUBAAN SIJIL PELAJARAN MALAYSIA
MATEMATIK 1449**

**MATHEMATICS
SKEMA PEMARKAHAN
KERTAS 1 DAN KERTAS 2**

Pengiraan Markah

$$\text{Markah} = \frac{\text{Kertas1} + \text{Kertas2}}{140} \times 100 \%$$

PAPER 1

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

Bilangan jawapan:

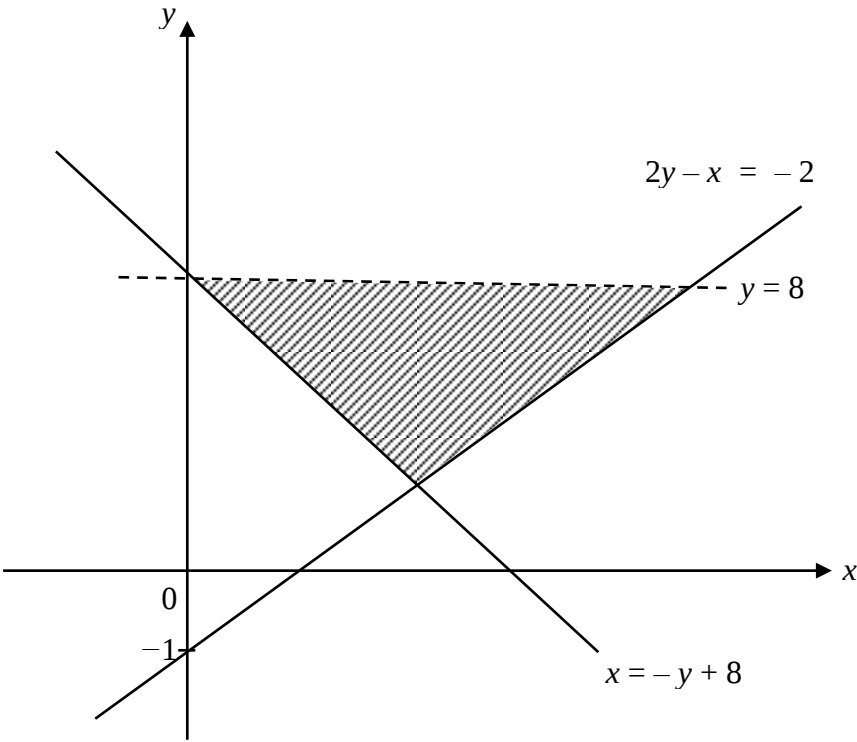
A - 9

B - 9

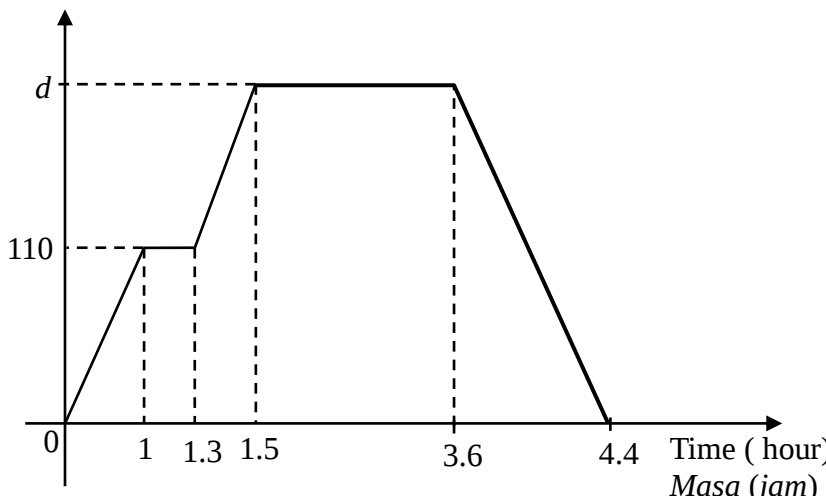
C - 10

D - 12

PAPER 2 / Section A

No.		Marking Scheme	Marks	Total
1		Draw line $y = 8$ 	K1 P2	3
2		$n^2 - 3n - 108 = 0$ $(n - 12)(n + 9) = 0$ $n = 12, n = -9$ Number of sides/ <i>Bilangan sisi</i> = 12	K1 K1 K1 N1	4
3	(a)	$\angle WMS$	P1	3
	(b)	$\sin \theta = \frac{8}{15}$ $\theta = 32.23^\circ @ 32^\circ 14'$	K1 N1	
4		$4x + 3y = 2x + 6y \text{ or / atau } 2x = 3y \text{ or / atau } 10x - 3y = 864 / \text{ setara}$ $8x = 864 \text{ or/ atau equivalent / setara}$ $x = 108$ $y = 72$	K1 K1 NI N1	4

5		$\frac{1}{2} \times \frac{1}{3} \times 6 \times 8 \times 5$ $\frac{1}{4} \times \frac{4}{3} \times \frac{22}{7} \times 5^3$ $\frac{1}{2} \times \frac{1}{3} \times 6 \times 8 \times 5 + \frac{1}{4} \times \frac{4}{3} \times \frac{22}{7} \times 5^3$ $170 \frac{20}{21} @ \frac{3590}{21} @ 170.95$	K1 K1 K1 N1	4
6	(a) (b) (c)	$\{5\} \in \{5,7\} \text{ or } \{5,7\} \subset \{5,7,9,11\}$ $p - m < 5 - m.$ $3n^2 - 1,$ $n = 1, 2, 3, 4, \dots$	P1 K2 K1 N1	5
7	(a) (b)	$\frac{120^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 21 \text{ or /atau } \frac{60^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 28$ $\frac{120^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 21 + \frac{60^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 28 + 21 + 28 + 7$ $129 \frac{1}{3} @ \frac{388}{3} @ 129.33$ $\frac{120^\circ}{360^\circ} \times \frac{22}{7} \times 21^2 \text{ or /atau } \frac{60^\circ}{360^\circ} \times \frac{22}{7} \times (28)^2 \text{ or /atau } (10.5 \times 18.2) \text{ or /atau }$ $\frac{120^\circ}{360^\circ} \times \frac{22}{7} \times 21^2 + \frac{60^\circ}{360^\circ} \times \frac{22}{7} \times (28)^2 - (10.5 \times 18.2)$ 681.71 cm^2	K1 K1 N1 K1 K1 N1	6
8	(a) (b) (c)	$-\frac{2}{3} = \frac{10-6}{-3-k}$ $k = 3$ $y = 6$ $y = -\frac{2}{3}x + c$ $10 = -\frac{2}{3}(-3) + c \text{ or } c = 8$ $y = -\frac{2}{3}x + 8$	K1 N1 P1 P1 K1 N1	6

9	(a)	$S = \{(K, B_1), (K, B_2), (K, M), (K, F), (B_1, K), (B_1, B_2), (B_1, M), (B_1, F), (B_2, K), (B_2, B_1), (B_2, M), (B_2, F), (M, F), (M, B_1), (M, B_2), (M, F), (F, K), (F, B_1), (F, B_2), (F, M)\}$	P2	6
	(b)	(i) $\{(M, B_1), (M, B_2)\}$ $\frac{2}{20} = \frac{1}{10}$	K1 N1	
		(ii) $\{(K, F), (B_1, F), (B_2, F), (M, F), (F, K), (F, B_1), (F, B_2), (F, M)\}$ $\frac{8}{20} = \frac{2}{5}$	K1 N1	
10	(a)	(i) Distance/ Jarak 	P1	5
		(i) 135 km (iii) 126 minutes/minit	P1 P1	
	(b)	$\frac{135 + 135}{4.4}$ 61.36 kmj^{-1} Note: 61 kmj ⁻¹ give N0	K1 N1	

11	(a)	$p = 3$ $k = \frac{1}{5(1) - 3(-4)}$ $= \frac{1}{17}$	P1	
	(b)	$x - \text{Kasut}$ $y - \text{Stoking}$ $20x + 20y = 830$ $43x + 52y = 1816$ $\begin{pmatrix} 20 & 20 \\ 43 & 52 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 830 \\ 1816 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{20(52) - 20(43)} \begin{pmatrix} 52 & -20 \\ -43 & 20 \end{pmatrix} \begin{pmatrix} 830 \\ 1816 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 38 \\ 3.5 \end{pmatrix}$ $x = \text{RM}38$ $y = \text{RM}3.50$	P1 K1 N1 N1	

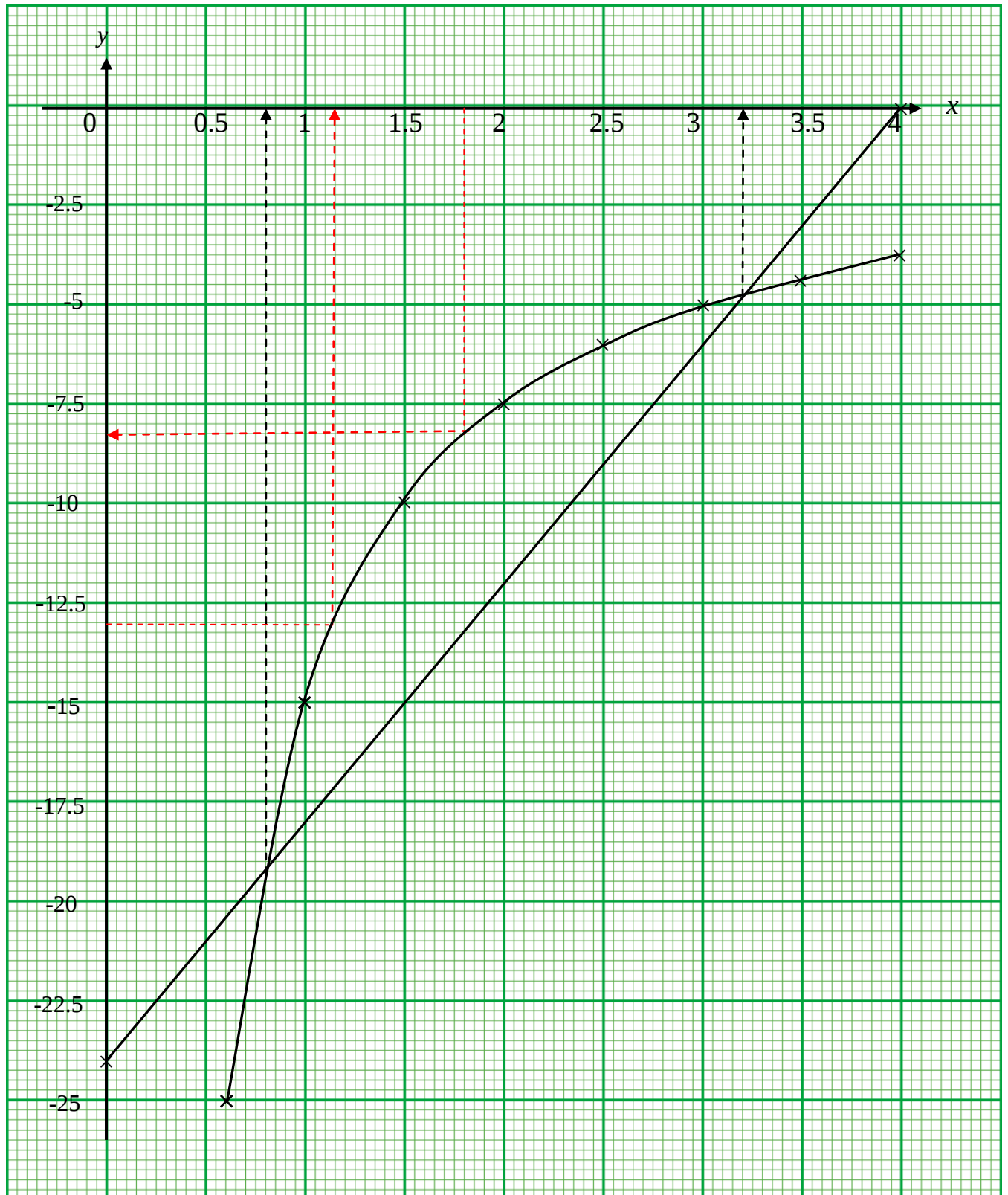
6

PAPER 2/ SECTION B

12	(a)	<table><tr><td>x</td><td>2</td><td>3.5</td></tr><tr><td>y</td><td>-7.5</td><td>-4.29</td></tr></table>	x	2	3.5	y	-7.5	-4.29	K1 K1	
x	2	3.5								
y	-7.5	-4.29								
	(b)	<u>Graph</u> Axes are drawn in the correct direction, uniform scale for <i>Paksi dilukis dengan arah yang betul dan skala seragam bagi</i> $0 \leq x \leq 4$ and $0 \leq y \leq -25$. 6 points and 2* points plotted accurately. <i>6 titik dan 2* titiknya diplot dengan tepat.</i> <u>Notes</u> : (1) 6 or 7 points plotted correctly, award K1. <i>6 atau 7 titik diplot dengan betul. K1</i> Smooth and continuous curve without straight line(s) and passes through all the 8 correct points for $0 \leq x \leq 4$. <i>Lengkungan licin dan berterusan tanpa garis lurus dan melalui 8 titik yang betul bagi $0 \leq x \leq 4$.</i>	P1 K2 N1							
	(c)	(i) 8.25 ± 0.25 (ii) 1.15 ± 0.1 <u>Notes</u> : Do not accept the values of x and y obtained by calculation. <i>Jangan terima nilai x dan y diperolehi daripada pengiraan.</i>	P1 P1							
	(d)	The straight line $y = 6x - 24$ drawn correctly. <i>Garis lurus $y = 6x - 24$ dilukis dengan betul.</i> <u>Note</u> : Equation $y = 6x - 24$ <u>or</u> equivalent seen, award K1 <i>Persamaan $y = 6x - 24$ atau setara dilihat, beri K1</i> 0.7 ± 0.1 3.2 ± 0.1 <u>Notes</u> : 1. Award N mark(s) if the value(s) of x shown on the graph. <i>Beri markah N jika nilai x ditunjukkan pada graf.</i> 2. Do not accept the value(s) of x obtained by calculation. <i>Jangan terima nilai x yang diperolehi daripada pengiraan.</i>	K2 N1 N1							

12

Graph for Question 12

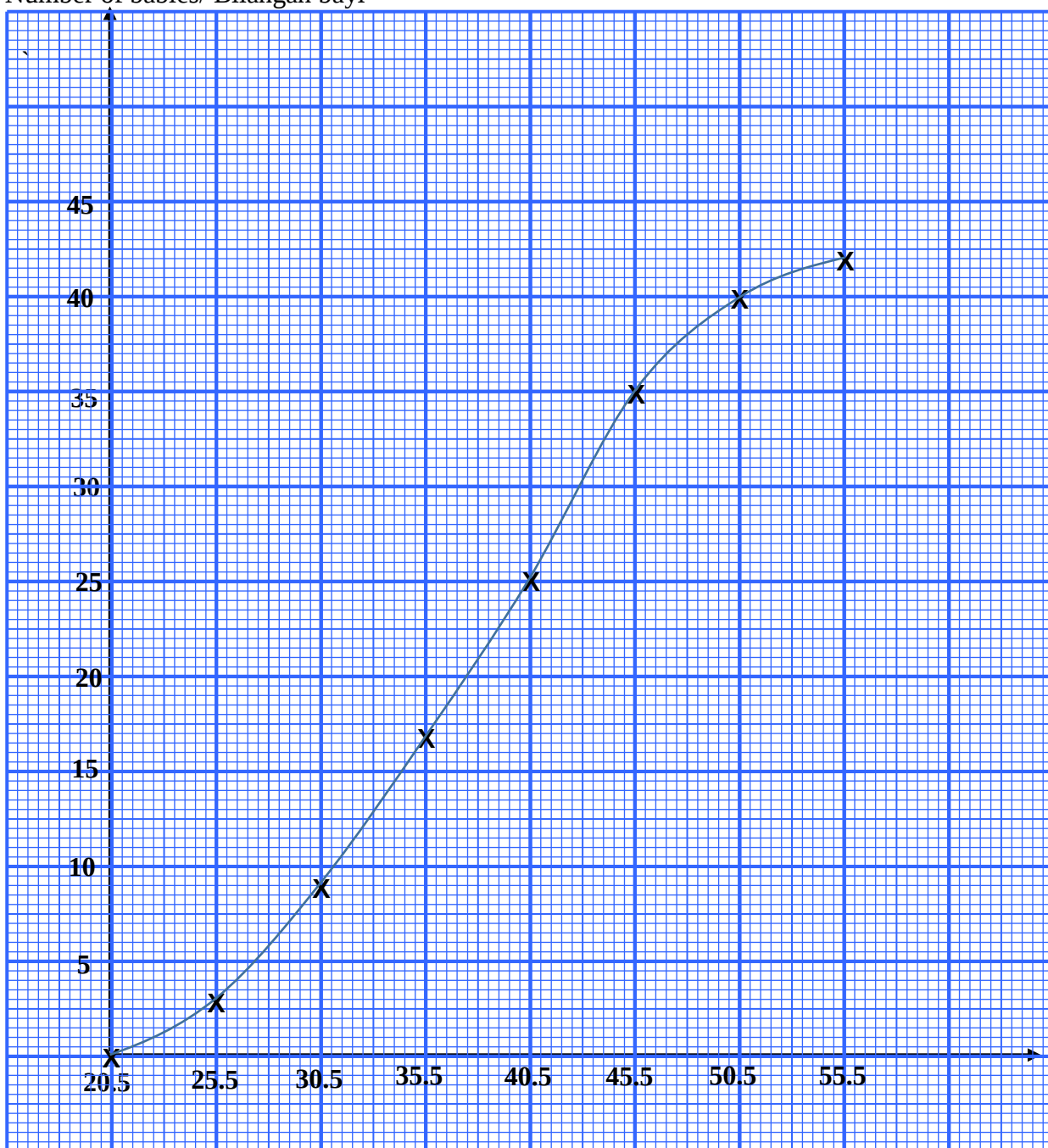


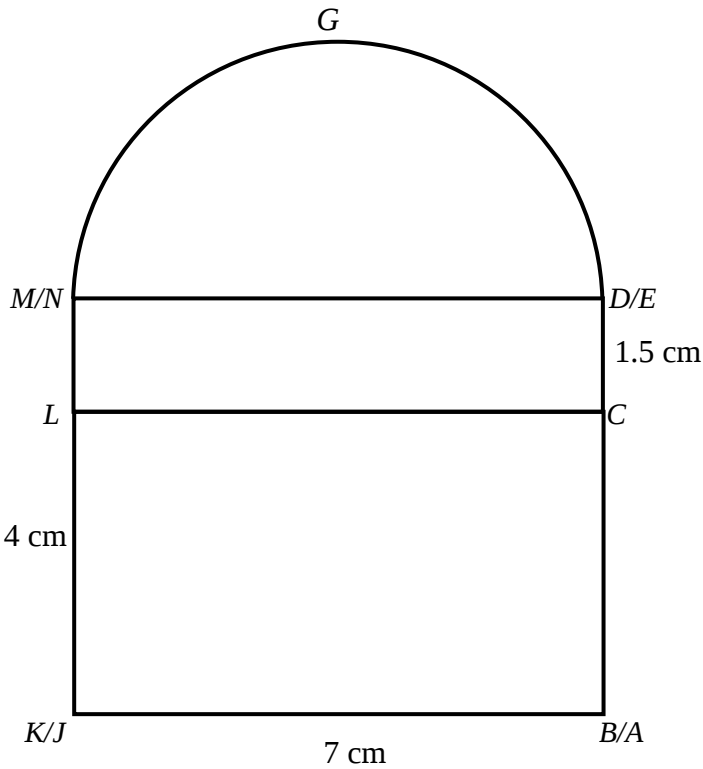
14	(a)	<table><tr><td></td><td>Head size (cm) <i>Saiz kepala (cm)</i></td><td>Frequency <i>Kekerapan</i></td><td>Cumulative Frequency <i>Kekerapan longgokan</i></td><td>Upper Boundary <i>Sempadan Atas</i></td></tr><tr><td>I</td><td>21 – 25</td><td>3</td><td>3</td><td>25.5</td></tr><tr><td>II</td><td>26 – 30</td><td>6</td><td>9</td><td>30.5</td></tr><tr><td>III</td><td>31 – 35</td><td>8</td><td>17</td><td>35.5</td></tr><tr><td>IV</td><td>36 – 40</td><td>8</td><td>25</td><td>40.5</td></tr><tr><td>V</td><td>41 – 45</td><td>10</td><td>35</td><td>45.5</td></tr><tr><td>VI</td><td>46 – 50</td><td>5</td><td>40</td><td>50.5</td></tr><tr><td>VII</td><td>51 – 55</td><td>2</td><td>42</td><td>55.5</td></tr></table> Head size : row II - VII Frequency : row I - VII Cumulative frequency : row I - VII Upper Boundary : row I - VII		Head size (cm) <i>Saiz kepala (cm)</i>	Frequency <i>Kekerapan</i>	Cumulative Frequency <i>Kekerapan longgokan</i>	Upper Boundary <i>Sempadan Atas</i>	I	21 – 25	3	3	25.5	II	26 – 30	6	9	30.5	III	31 – 35	8	17	35.5	IV	36 – 40	8	25	40.5	V	41 – 45	10	35	45.5	VI	46 – 50	5	40	50.5	VII	51 – 55	2	42	55.5	P1 P1 P1 P1
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V	41 – 45	10	35	45.5																																							
VI	46 – 50	5	40	50.5																																							
VII	51 – 55	2	42	55.5																																							
(b)	$\frac{(3 \times 23) + (6 \times 28) + (8 \times 33) + (8 \times 38) + (10 \times 43) + (5 \times 48) + (2 \times 53)}{42}$ Note: Allow two mistakes in midpoint for K1 $\frac{1581}{42} = 37.64 = \frac{527}{14}$	K2 N1																																									
(c)	Refer to the graph / Rujuk kertas graf Axes drawn in the correct direction, uniform scale for <i>Paksi dilukis dengan arah yang betul, skala seragam bagi</i> $20.5 \leq x \leq 55.5$ and $0 \leq x \leq 42$ *8 points are correctly plotted *8 titik di tanda dengan betul Note : 6 or 7 points correctly plotted, award K1 6 atau 7 titik di tanda dengan betul, beri K1 Smooth and continuous curve without any straight line passes through all 8 correct points for $20.5 \leq x \leq 55.5$. <i>Lengkungan licin dan berterusan tanpa garis lurus dan melalui 8 titik yang betul bagi $20.5 \leq x \leq 55.5$.</i>	P1 K2 N1																																									
(d)	6	P1																																									

12

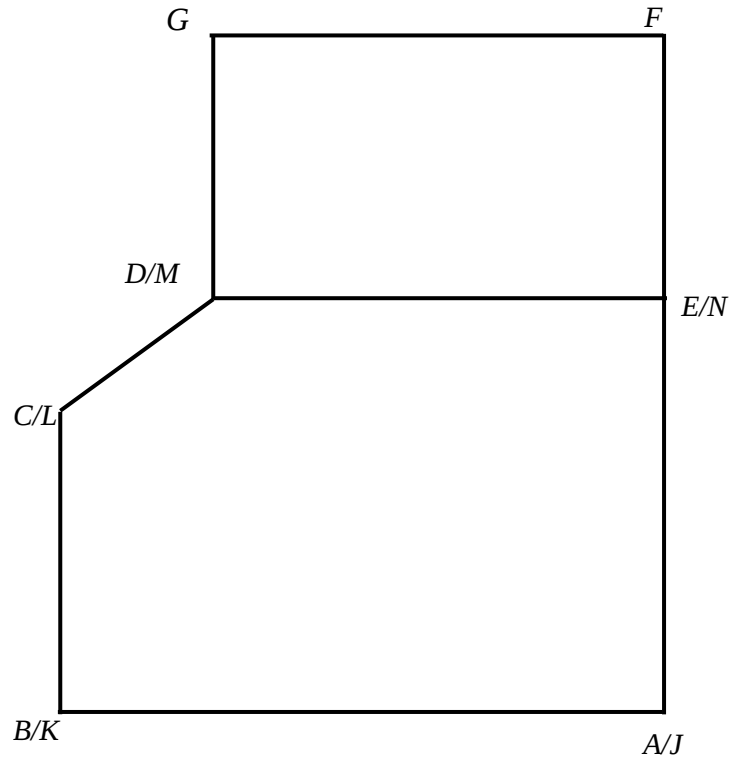
Graph for Question / Graf untuk Soalan 14

Number of babies/ Bilangan bayi



15	a	i.	 Correct shape with rectangles $BCLK$ and $CDML$ and semicircle MGD. <i>Bentuk betul dengan segiempat $BCLK$ dan $CDML$ dan separuh bulatan MGD.</i> $MD > LK > ML$ The measurement is correct to ± 0.2 cm (one direction) and the angles at all vertices of the rectangles are $90^\circ \pm 1^\circ$ <i>Ukuran betul kepada ± 0.2 cm (satu arah) dan sudut pada semua bucu segiempat adalah $90^\circ \pm 1^\circ$.</i>	K1	
				K1	
				N2	

ii.



Correct shape with pentagon $ABCDE$ and rectangle $EDGF$.
Bentuk betul dengan pentagon $ABCDE$ dan segiempat $EDGF$.

$BA > DE > EA > BC > DC$

The measurement is correct to ± 0.2 cm (one way)
 and the angles at all vertices of the rectangles are $90^\circ \pm 1^\circ$
*Ukuran betul kepada ± 0.2 cm (satu arah) dan sudut pada semua
 bucu segiempat adalah $90^\circ \pm 1^\circ$.*

K1

K1

N1

	b)	Correct shape with two rectangles <i>DENM</i> and <i>CDML</i>. <i>Bentuk betul dengan dua segiempat DENM dan CDML.</i> Dotted lines with equal length and perpendicular to each other. <i>Garis putus-putus sama panjang dan berserenjang di antaranya.</i> $NE > DE > LM$ The measurement is correct to ± 0.2 cm (one direction) and the angles at all vertices of the rectangles are $90^\circ \pm 1^\circ$ <i>Ukuran betul kepada ± 0.2 cm (satu arah) dan sudut pada semua bucu segiempat adalah $90^\circ \pm 1^\circ$.</i>	K1 K1 K1 N2	12
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16	a	(i) $(32^{\circ}U, 80^{\circ}E)$ (ii) $180 \times 60 \cos 32^{\circ}$ 9158.92 b.n.	P1P1 K1, K1 N1	12
	b	$\frac{5200}{60}$ 86.67° Latitude = $86.67^{\circ} - 32$ $54.67^{\circ}U \text{ or } 54^{\circ} 40'U$	K1 K1 N1	
	c	$\frac{(58 + 58) \times 60 + 5200}{650}$ 18.71 jam	K1, K1, K1 N1	