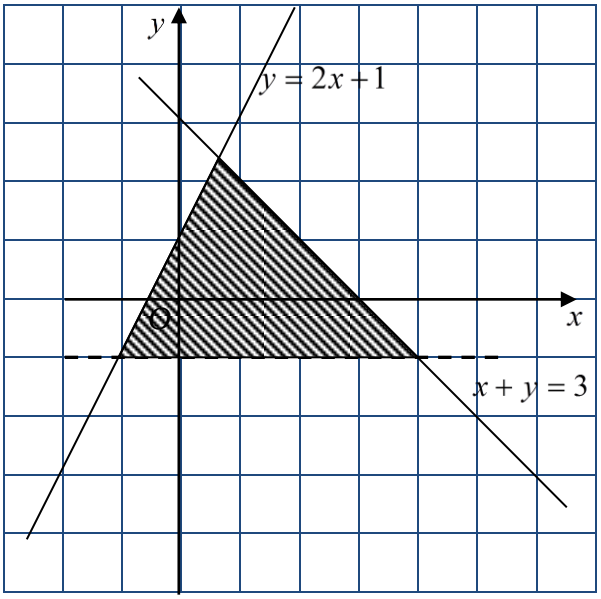
PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2017
ANJURAN BERSAMA
MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI PERLIS
DAN
MAJLIS GURU CEMERLANG NEGERI PERLIS

SIJIL PELAJARAN MALAYSIA 2017 **1449/2**
MATEMATIK
Kertas 2
Peraturan Pemarkahan
Ogos

PERATURAN PEMARKAHAN

Question		Solution and Mark Scheme	Mark	Total
1		 Straight line $y=-1$, is drawn correctly The region is shaded correctly Note: 1. $y=-1$ is drawn in full line, give K1P1 2. Award P1 to shaded region bounded by two correct lines. (Check one vertex from any two correct lines)	 P1 P2	3
2		$3x^2-28x-20=0$ $(3x+2)(x-10)$ or equivalent $x=10$ Note : $x=-\frac{2}{3}$, $x=10$ as final answer, award N1.	K1 K1 N2	4

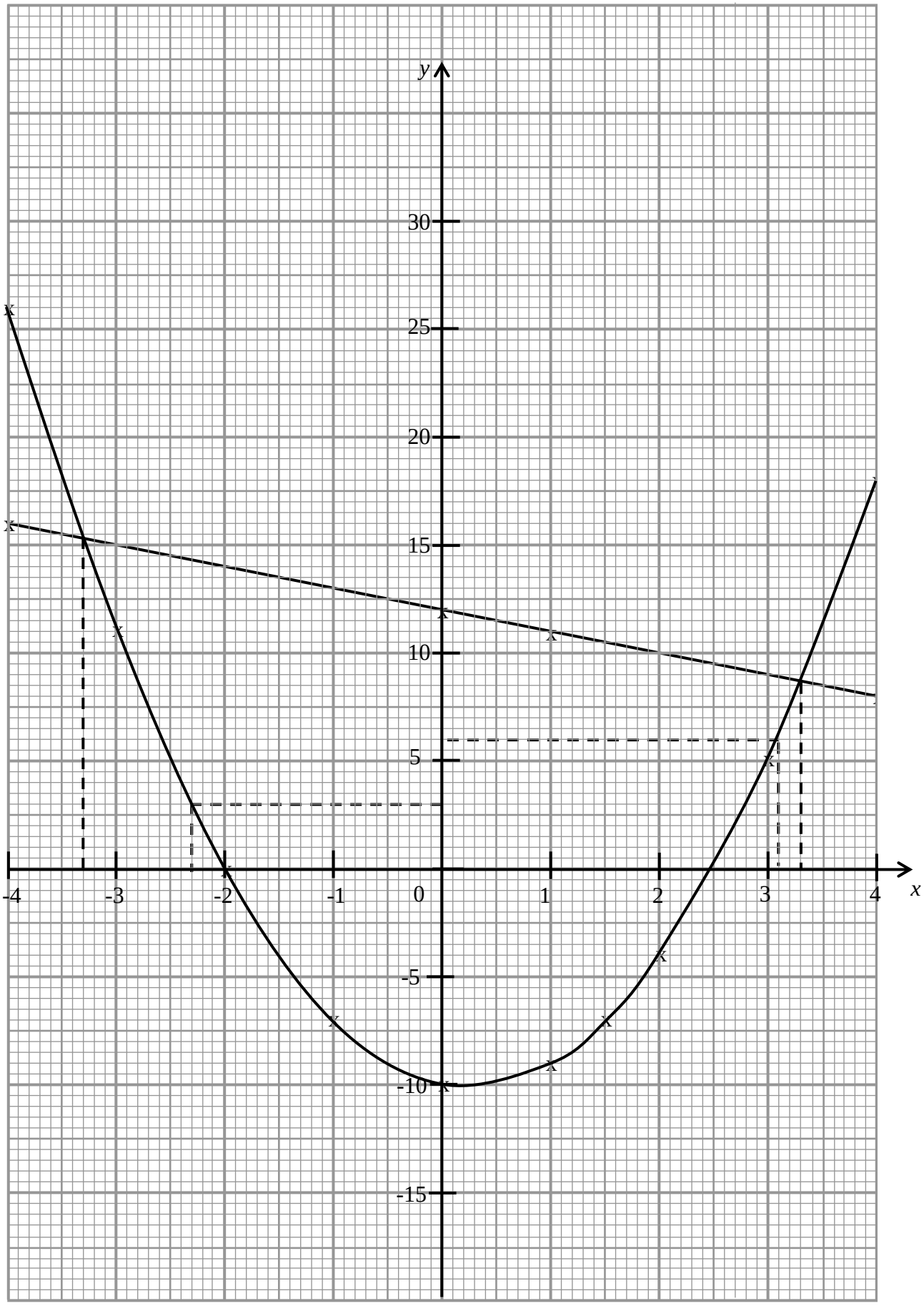
Question		Solution and Mark Scheme	Mark	Total
3		$55-8$ or $82-8$ or $4x+7y+8=55$ or $8x+10y+8=82$ $4p+7m=47$ or $8p+10m=74$ or equivalent $4m=20$ m – bata merah p - bata putih OR $\begin{pmatrix} p \\ m \end{pmatrix} = \frac{1}{4(10)-7(8)}\begin{pmatrix} 10 & -7 \\ -8 & 4 \end{pmatrix}\begin{pmatrix} 47 \\ 74 \end{pmatrix}$ (K2) Note: $\begin{pmatrix} 4 & 7 \\ 8 & 10 \end{pmatrix}\begin{pmatrix} p \\ m \end{pmatrix} = \begin{pmatrix} 47 \\ 74 \end{pmatrix}$ or correct inverse seen K1 $m=5$ $p=3$	P1 K1 K1 N1 N1	5
4	(a) (b)	$\angle EAB$ or $\angle BAE$ $\tan\angle\theta = \frac{9}{6}$ or equivalent $56.31°$ or $56°19'$	P1 K1 N1	3
5		$\frac{22}{7}\times 35^2\times 60$ $\frac{22}{7}\times 35^2\times 60\times 2$ $\left[\frac{22}{7}\times 35^2\times 60\times 2\right]\div 2200$ $=210$	 K1 K1 K1 N1	4

Question		Solution and Mark Scheme	Mark	Total
6	(a)	$4m-(-6)(2)=0$ or $4m=-12$	K1	6
		-3	N1	
	(b)	$\begin{pmatrix}2 & -1\\ -3 & 4\end{pmatrix}\begin{pmatrix}x\\ y\end{pmatrix}=\begin{pmatrix}-7\\ 13\end{pmatrix}$ or equivalent	P1	
		$\begin{pmatrix}x\\ y\end{pmatrix}=\frac{1}{2(4)-(-1)(-3)}\begin{pmatrix}4 & 1\\ 3 & 2\end{pmatrix}\begin{pmatrix}-7\\ 13\end{pmatrix}$	K1	
		$x=-3$	N1	
		$y=1$	N1	
		Note:		
		$\begin{pmatrix}x\\ y\end{pmatrix}=\begin{pmatrix}-3\\ 1\end{pmatrix}$ as a final answer, award N1		
7	(a)	$2=\frac{1}{4}(-4)+c$ OR $\frac{h-2}{0-(-4)}=\frac{1}{4}$	K1	5
		3	N1	
	(b)	$\frac{2-(-6)}{-4-0}$	K1	
		-2	N1	
		$y=-2x-6$	N1	
8	(a)	False / *Palsu*	P1	5
	(b)	Some / *Sebilangan*	P1	
	(c)	All negative integers are less than 0 / *Semua integer negatif adalah kurang daripada* 0.	P1	
		OR		
		If x is a negative integer, then x less than 0. *Jika x adalah integer negatif, maka x kurang daripada* 0.		
	(d)	16	N2	
		Note : 2^4 award N1		

Question		Solution and Mark Scheme	Mark	Total
9	(a)	$\frac{90}{360}\times 2\times\frac{22}{7}\times 14$ or $\frac{60}{360}\times 2\times\frac{22}{7}\times 7$	K1	6
		$7+\frac{60}{360}\times 2\times\frac{22}{7}\times 7+7+\frac{90}{360}\times 2\times\frac{22}{7}\times 14+14$	K1	
		$\frac{172}{3}$ or $57\frac{1}{3}$ or 57.33	N1	
	(b)	$\frac{90}{360}\times\frac{22}{7}\times 14^2$ or $\frac{60}{360}\times\frac{22}{7}\times 7^2$	K1	
		$\frac{90}{360}\times\frac{22}{7}\times 14^2-\frac{1}{2}\times 7\times 14+\frac{60}{360}\times\frac{22}{7}\times 7^2$	K1	
		$\frac{392}{3}$ or $130\frac{2}{3}$ or 130.67	N1	
10	(a)	$\{(6,A),(6,5),(6,K),(6,3),(A,6),(A,5),(A,K),(A,3),(5,6),(5,A),$ $(5,K),(5,3),(K,6),(K,A),(K,5),(K,3),(3,6),(3,A),(3,5),(3,K)\}$	P2	6
	(b)	(i) $\{(A,K),(K,A)\}$	K1	
		$\frac{2}{20}$ or $\frac{1}{10}$	N1	
		(ii) $\{(5,6),(5,A),(5,K),(5,3),(3,6),(3,A),(3,K),(3,5),(6,K),(A,K)\}$	K1	
		$\frac{10}{20}$ or $\frac{1}{2}$	N1	
		Note: 1. Allow two mistakes for P1 2. Accept answer without listing with complete sample space in 10 (a)		

Question		Solution and Mark Scheme	Mark	Total
11	(a)	10.45 or 1045 Note : 10.45 p.m or 10.45 malam, award P0	P1	5
	(b)	$90 - 36$ 54	K1 N1	
	(c)	$\frac{90}{\frac{120}{60}}$ or $\frac{90}{2}$ 45	K1 N1	
12	(a)	11	K1	
		-7	K1	2
	(b)	Axes are drawn in correct directions with uniform scale for $-4 \le x \le 4$ and $-10 \le y \le 26$.	P1	
		All points are correctly plotted or curve passes through all the points for $-4 \le x \le 4$ and $-10 \le y \le 26$. Note : 7 or 8 points correctly plotted award K1	K2	
		Smooth and continuous curve without any straight line passes through all 9 points using the given scale for $-4 \le x \le 4$ and $-10 \le y \le 26$	N1	4
	(c)	(i) $2.5 \le y \le 3.5$	P1	
		(ii) $3.0 \le x \le 3.2$	P1	2
	(d)	Straight line $y = -x + 12$ correctly drawn **Note**: Identify equation $y = -x + 12$ award K1	K2	
		Values of x : $3.2 \le x \le 3.4$ $-3.4 \le x \le -3.2$	N1 N1	4
		Note: Values of x obtained by calculation, award N0		12

Graph for Question 12 / *Graf untuk Soalan* 12



Question		Solution and Mark Scheme	Mark	Total
13	(a)	(i) (3, 2)	P1	
		(ii) (9 , 2) Note: (9, 2) marked on the diagram or $(5,-3)$seen or $(5,-3)$ marked on the diagram, award P1.	P2	3
	(b)	(i) (a) **V** = Rotation of 90^o anticlockwise about the centre of *J* (2, 4) **V** = *Putaran* 90^o *lawan arah jam pada pusat J* (2, 4) or equivalent	P3	
		(b) **W** = Enlargement with scale factor of 2 about the centre *R* (2,6) **W** = *Pembesaran dengan faktor skala* 2 *pada pusat R* (2,6). or equivalent	P3	
		(ii) $90\times 2^2-90$ Note: $90\times *2^2$, award K1	K2	
		270	N1	9
				12

Question		Solution and Mark Scheme	Mark	Total
14		(a)		

	Umur (tahun)	Kekerapan	Titik Tengah
I	17 – 21	0	19
II	22 – 26	4	24
III	27 – 31	7	29
IV	32 – 36	6	34
V	37 – 41	4	39
VI	42 – 46	2	44
VII	47 – 51	1	49
VIII	52 – 56	0	54

Frequency : II to VIII — P2
Midpoint : II to VIII — P1 — 3

(b) 5 — P1 — 1

(c) $= \dfrac{*4(24)+*7(29)+*6(34)+*4(39)+*2(44)+*1(49)}{24}$ — K2

Note:
1. Allow two mistakes in frequency for K1
2. Allow two mistakes for the products of frequency and midpoint for K1

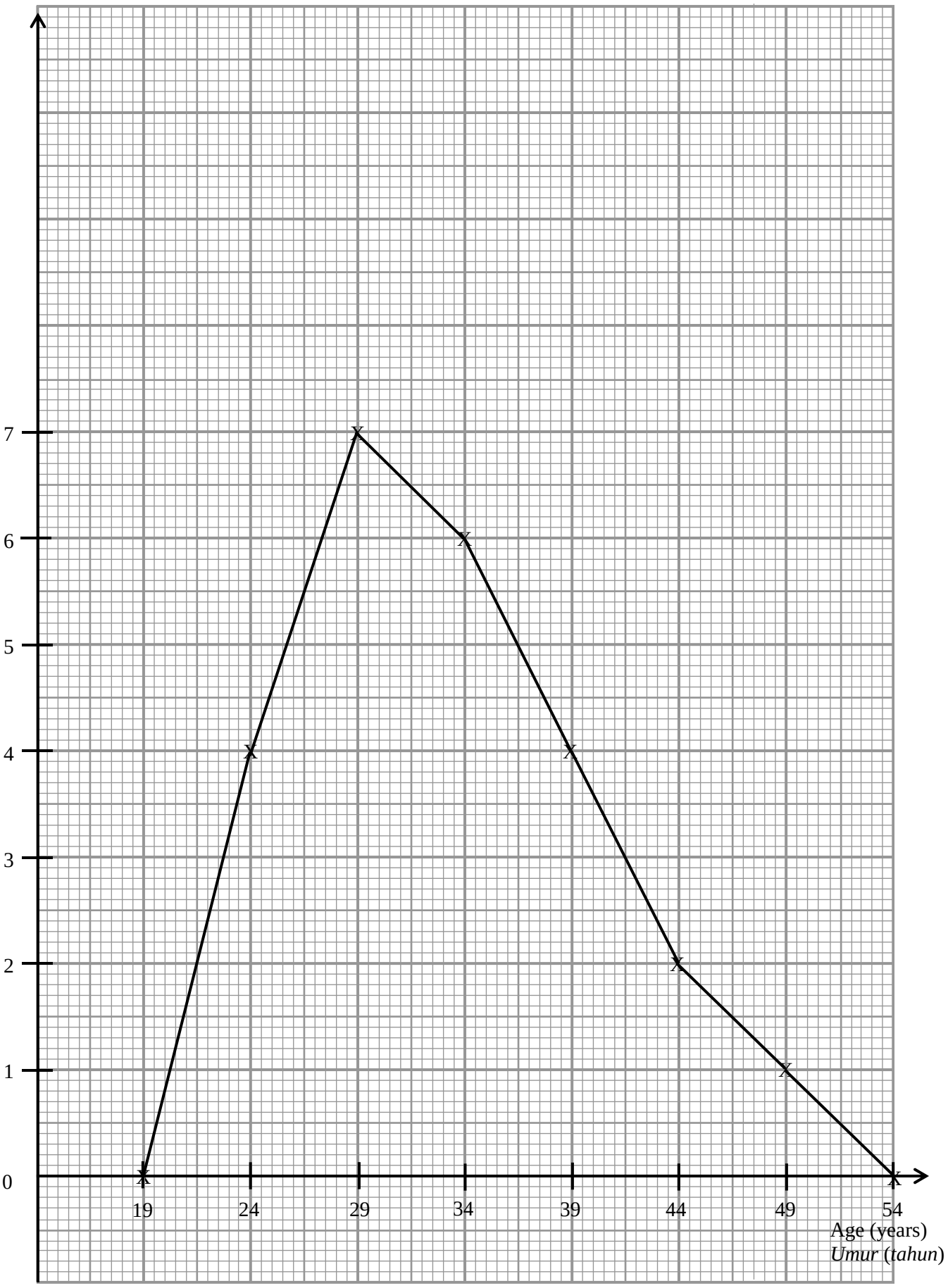
$\dfrac{796}{24}$ *or* $33\dfrac{1}{6}$ *or* 33.17 — N1 — 3

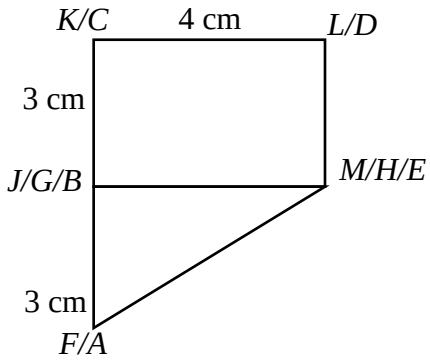
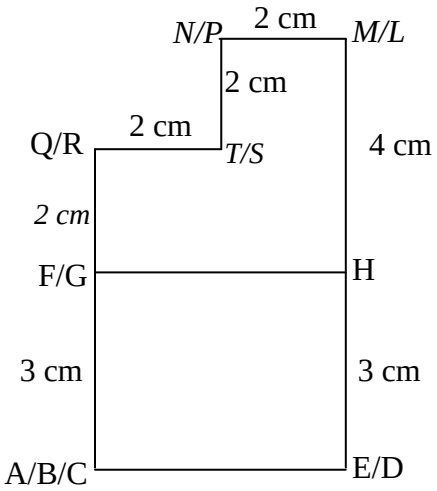
Note: Correct answer from incomplete working

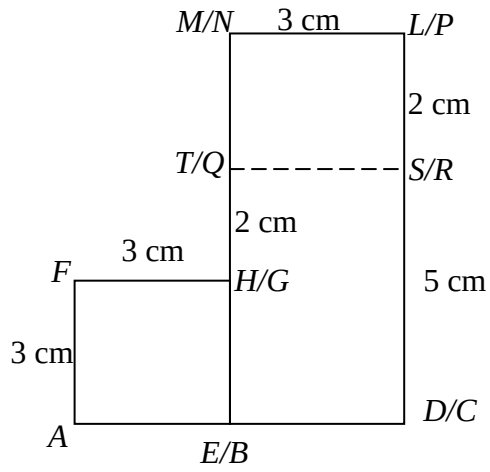
e.g $\dfrac{796}{24}$ award Kk2

Question		Solution and Mark Scheme	Mark	Total
14		(d) Frequency Polygon Axes drawn in the correct directions with uniform scales for $19 \le x \le 54$ and $0 \le y \le 7$	P1	
		1 point and *7 points correctly plotted through all the points for $19 \le x \le 54$ and $0 \le y \le 7$ Note: 7 or 6 points correctly plotted award K1	K2	
		Smooth and continuous straight line, passing through all 8 correct points using the given scales for $19 \le x \le 54$ and $0 \le y \le 7$	N1	4
		(e) *7 Note: Do not accept answer without frequency polygon	N1	1
				12

Graph for Question 14 / *Graf untuk Soalan* 14



Question		Solution and Mark Scheme	Mark	Total
15	(a)			
		Correct shape with rectangle and right-angled triangle	K1	
		KL > KB = BF	K1	
		Measurement correct to $\pm 0.2cm$ (one way) and right-angles at vertices = 90° ± 1°	N1	3
		Note: Ignore label		
	(b)	(i)		
				
		Correct shape with rectangle AEHF and hexagon FHMNTQ	K1	
		All solid line		
		ME > EB > BG > GQ = QT = TN = NM	K1	
		Measurement correct to $\pm 0.2cm$ (one way) and all angle at a vertices = 90° ± 1°	N2	4
		Note: Ignore label		

Question		Solution and Mark Scheme	Mark	Total
15	(b)	(ii) 		
		Correct shape with rectangle *MLDE* and square *AEHF*	K1	
		All solid lines (ignore TS or QR)		
		F-S joined by dashed line to form rectangle MLST	K1	
		LD > DA > AF = FG > GQ = QN = PS	K1	
		Measurements correct to $\pm 0.2cm$ (one way) and all angles at vertices = $90° \pm 1°$	N2	5
		Note: Ignore label		
				12

Question		Solution and Mark Scheme	Mark	Total
16	(a)	$(60°S, 70°E)$ Note : $(60°S, \theta°E)$ award P2 $(60°S, 70°W)$ award P2 $(60°S, \theta°W)$ award P1	P3	3
	(b)	$\frac{2520}{60\cos 60°}$ Note : $\cos 60°$ seen, award K1	K2	
		$110° \sim 84°$ or $26°$	K1	
		$26°W$	N1	4
	(c)	$(180° - 60° - 60°) \times 60$	K1	
		3600	N1	2
	(d)	$(60° + 60°) \times 60$	K1	
		$\frac{(60° + 60°) \times 60 + 2520}{720}$ or $\frac{9720}{720}$	K1	
		13.5 or $13\frac{1}{2}$	N1	3
				12