



**MODUL PINTAS
TINGKATAN 5**

1449/2

**MATHEMATICS
Kertas 2**

$2\frac{1}{2}$ jam

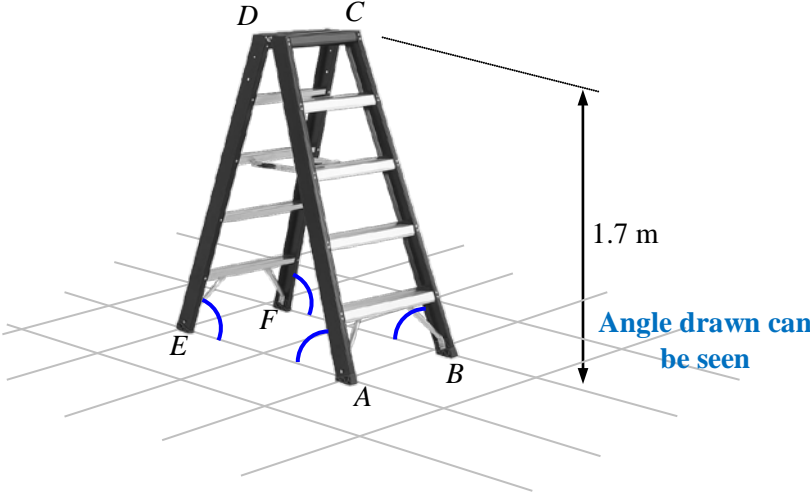
Dua jam tiga puluh minit

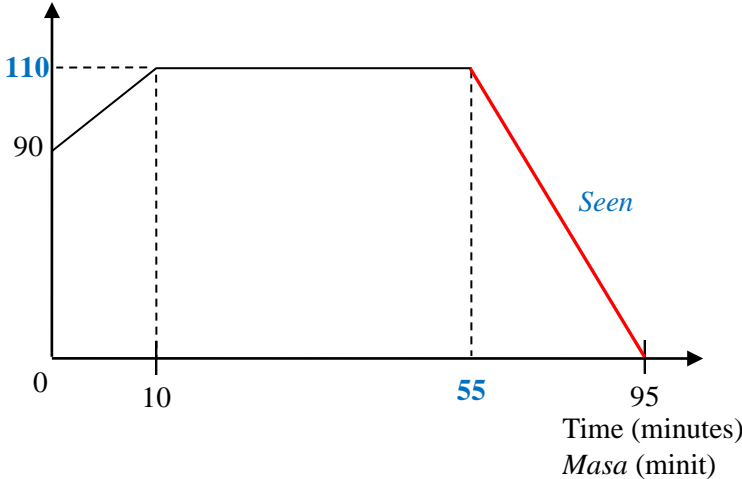
**PERATURAN PEMARKAHAN
MATHEMATICS K2**

1449/2

PINTAS 2020
Peraturan Pemarkahan
Matematik Kertas 2

Q	Solution & Mark Scheme	Sub Mark	Mark
1	$y \geq x$ $y < -x + 4$ $x \geq 0$	P1 P1 P1	
2	$\frac{3x(x-1)}{2} = x+6$ $3x^2 - 5x - 12 = 0$ $x_1 = 3, \quad x_2 = -\frac{4}{3}$ $\therefore x = 3$ <p>Total Mak Kiah was quarantined = 18 days</p>	K1 K1 K1 N1	4
3	$\frac{3x}{y-2} = \frac{3}{5}$ $\frac{x+4}{2y} = \frac{5}{14}$ <p>Substitution</p> $x = \frac{y-2}{5} \quad \text{or} \quad y = 5x+2 \quad \text{or} \quad x = \frac{5y-32}{7} \quad \text{or} \quad y = \frac{7x+32}{5}$ <p>Or</p> <p>Elimination</p> $25x = 5y - 10 \quad \text{or} \quad 35x = 7y - 14 \quad \text{or equivalent}$ $\text{or} \quad 5y = 7x + 28 \quad \text{or} \quad 25y = 35x + 140 \quad \text{or equivalent}$ $18x = 18 \quad \text{or} \quad 18y = 126$ $x = 1 \quad \text{or} \quad y = 7$ $\frac{1}{7}$	P1 P1 K1 K1 K1 N1	6

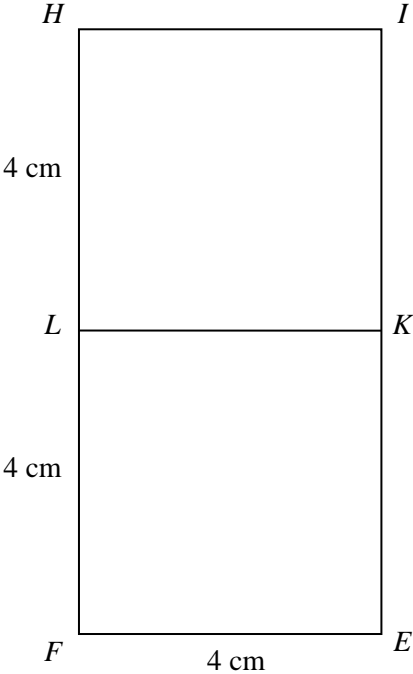
Q	Solution & Mark Scheme	Sub Mark	Mark
4	<p>(a) </p> <p>(b) $\angle DAE$ or $\angle EAD$ or $\angle DEA$ or $\angle AED$ or $\angle CBF$ or $\angle FBC$ or $\angle CFB$ or $\angle BFC$ $\sin \theta = \frac{1.7}{2}$ 58.21° or $58^\circ 13'$</p>	<p>P1</p> <p>P1</p> <p>K1</p> <p>N1</p>	<p>4</p>
5	<p>$10p + 7c = 33000$ $35p + 12c = 98700$ $\begin{pmatrix} 10 & 7 \\ 35 & 12 \end{pmatrix} \begin{pmatrix} p \\ c \end{pmatrix} = \begin{pmatrix} 33000 \\ 98700 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \frac{1}{(10)(12) - (7)(35)} \begin{pmatrix} 12 & -7 \\ -35 & 10 \end{pmatrix} \begin{pmatrix} 33000 \\ 98700 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \frac{1}{-125} \begin{pmatrix} -294900 \\ -168000 \end{pmatrix}$ $\begin{pmatrix} p \\ c \end{pmatrix} = \begin{pmatrix} 2359 \cdot 20 \\ 1344 \end{pmatrix}$ Sebuah telefon pintar : RM2 359.20 Sebuah kamera : RM1 344</p>	<p>P1</p> <p>P1</p> <p>K1</p> <p>NI</p> <p>NI</p>	<p>5</p>
6	<p>(a) (i) False / Palsu</p> <p>(ii) If the polygon is a heptagon, then the polygon have 7 sides. <i>Jika sebuah poligon ialah heptagon, maka poligon itu mempunyai 7 sisi.</i></p> <p>(b) All prime numbers have only two factors. <i>Semua nombor perdana hanya mempunyai dua faktor.</i></p> <p>(c) $2(18\pi + 30\pi)$ or 96π or equivalent Note: 48π seen award K1</p>	<p>P1</p> <p>P1</p> <p>K1</p> <p>N2</p>	<p>5</p>

Q	Solution & Mark Scheme	Sub Mark	Mark
7	$\sqrt{17^2 - 15^2} = 8 \text{ or } S(15, 2)$ $m_{PQ} = m_{ST} = \frac{8}{15}$ $\frac{8}{15}(15) + c = 2$ $c = -6$	<p>K1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>4</p>
8	<p>(a) $p = 110$ $q = 55$ Speed (km h⁻¹) <i>Laju</i> (km j⁻¹)</p>  <p>Time (minutes) <i>Masa</i> (minit)</p> <p>(b) $\frac{\left(\frac{1}{2} \times (90 + 110) \times \frac{10}{60}\right) + \left(\frac{45}{60} \times 110\right) + \left(\frac{1}{2} \times \frac{40}{60} \times 110\right)}{\frac{95}{60}}$</p> <p>$85\frac{15}{19}$ or 85.79</p>	<p>P1</p> <p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p>	<p>5</p>

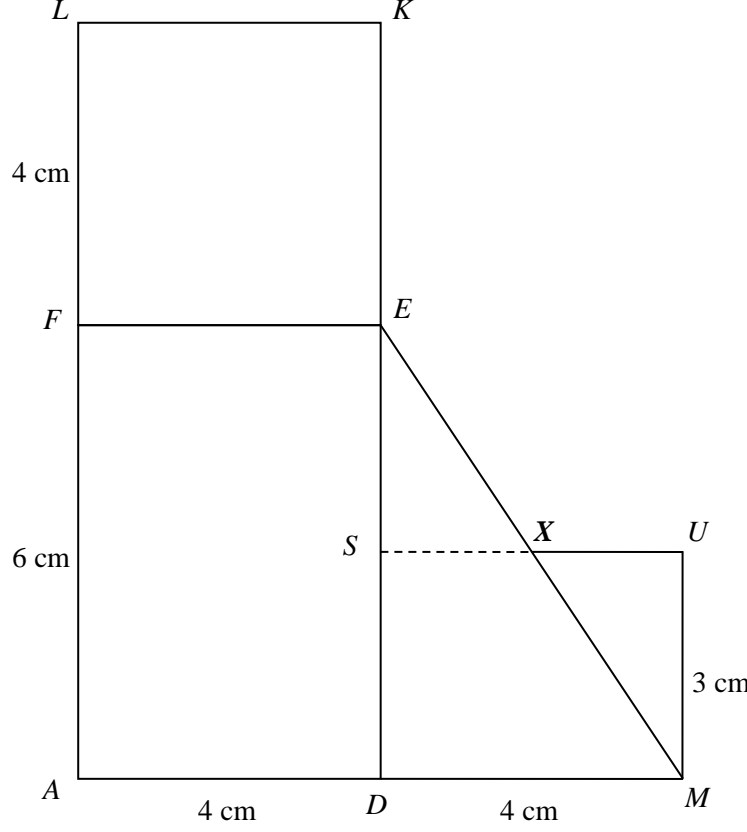
Q	Solution & Mark Scheme	Sub Mark	Mark
9	<p>(a) {(A, 4), (A, 6), (A, 7), (A, 8), (K, 4), (K, 6), (K, 7), (K, 8), (E, 4), (E, 6), (E, 7), (E, 8), (D, 4), (D, 6), (D, 7), (D, 8)}</p> <p>(b) (i) (K, 4), (K, 6), (K, 8)</p> $\frac{3}{16}$ <p>(ii) (A, 4), (A, 6), (A, 7), (A, 8), (D, 4), (E, 4), (E, 6), (E, 7), (E, 8), (E, 8)</p> $\frac{5}{8}$ <p>Note /Nota :</p> <ol style="list-style-type: none"> Accept maximum two mistakes for P1 for (a) Accept (b)(i) and (b) (ii) without list for K1N1 with the condition getting P2 for (a) <p>Accept $\frac{10}{16}$ as answer in (b)(ii) for N1</p>	<p>P2</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	6
10	$\frac{1}{2} \times \frac{22}{7} \times 0.6^2 \times 2.25$ $\frac{1}{2} \times \frac{22}{7} \times 0.55^2 \times 2.15$ $\frac{1}{2} \times \frac{22}{7} \times 0.6^2 \times 2.25 - \frac{1}{2} \times \frac{22}{7} \times 0.55^2 \times 2.15$ <p>0.25</p>	<p>K1</p> <p>K1</p> <p>K1</p> <p>N1</p>	4
11	<p>(a) $2 \times \frac{22}{7} \times 1.5$ or $2 \times \frac{22}{7} \times 0.5$</p> $10 \times \left[\left(2 \times \frac{22}{7} \times 1.5 \right) + \left(2 \times \frac{22}{7} \times 0.5 \right) \right]$ <p>125.71 or $\frac{880}{7}$ or $125\frac{5}{7}$</p> <p>(b) $\frac{22}{7} \times 1.5 \times 1.5$ or $\frac{22}{7} \times 0.5 \times 0.5$</p> $2 \times \left[\left(\frac{22}{7} \times 1.5 \times 1.5 \right) - \left(\frac{22}{7} \times 0.5 \times 0.5 \right) \right]$ <p>12.57 or $\frac{88}{7}$ or $12\frac{4}{7}$</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p>	6

Q	Solution & Mark Scheme			Sub Mark	Mark	
12	(a)	x	-3	1	K1 K1	
		y	25	13		
	(b)	<u>Graph</u> Axes are drawn in the correct direction, uniform scale for $-3 \leq x \leq 3.5$ and $-18.875 \leq y \leq 25$. 8 points plotted accurately Smooth, continuous curve and passes through all the 8 correct points $-3 \leq x \leq 3.5$ and $-18.875 \leq y \leq 25$. <u>Notes</u> : 1. 6 or 7 points plotted correctly, award 1 mark 2. Other scale being used, subtract 1 mark			P1 K2 N1	
	(c)	(i) $7.0 \leq y \leq 8.0$ (ii) $2.3 \leq x \leq 2.5$			P1 P1	
13	(d)	$y = -x + 11$ correctly drawn <u>Note</u> : $y = -x + 11$ seen, award 1 mark $0.15 \leq x \leq 0.35$ $2.0 \leq x \leq 2.2$			K2 N1 N1	12
	(a)	(i) (0, 3) (ii) (-2, -2) <u>Note</u> : (-2, -2) is marked on the diagram <u>or</u> (-2, 1) is seen <u>or</u> (-2, 1) is marked on the diagram, award P1.			P1 P2	
	(b)	(i) (a) V = Rotation of 180° about the centre (0, 2). <i>Putaran 180° pada pusat (0, 2).</i> <u>Note</u> : 1. Rotation 180° <u>or</u> Rotation, centre (0, 2) // <i>Putaran 180° <u>or</u> Putaran, pusat (0, 2), award P2.</i> 2. Rotation // <i>Putaran</i> , award P1			P3	
		(b) W = Enlargement about the centre $G(2, 2)$ with the scale factor 2. <i>Pembesaran pada pusat $G(2, 2)$ dengan faktor skala 2.</i> <u>Note</u> : 1. Enlargement , centre $G(2, 2)$ <u>or</u> Enlargement, scale factor 2 // <i>Pembesaran, pusat $G(2, 2)$ <u>or</u> Pembesaran, faktor skala 2, award P2.</i> 2. Enlargement // <i>Pembesaran</i> , award P1.			P3	
	(ii)	$(*2^2 \times 28) - 28$ <u>Note</u> : $(*2^2 \times 28)$ award K1 84			K2 N1	12

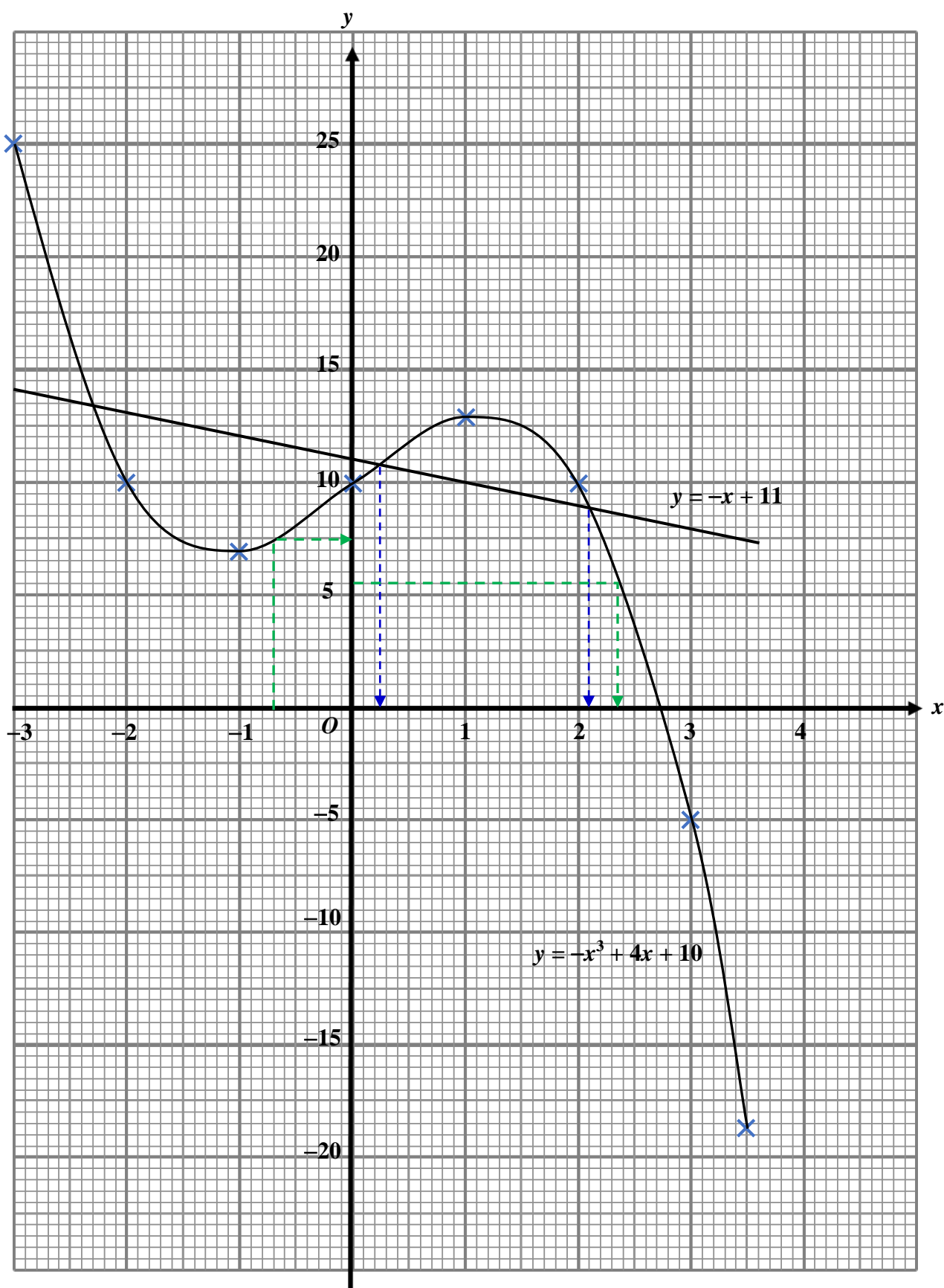
Q	Solution & Mark Scheme	Sub Mark	Mark				
14	(a)	Column I	Column II	Column III	Column IV		
		Speed (kmh ⁻¹) <i>Laju</i> (kmj ⁻¹)	Upper boundry <i>Sempadan atas</i>	Frequency <i>Kekerapan</i>	Cumulative Frequency <i>Kekerapan longgokan</i>		
		86 – 90	90.5	0	0		
		91 – 95	95.5	12	12		
		96 – 100	100.5	45	57		
		101 – 105	105.5	67	124		
		106 – 110	110.5	56	180		
		111 – 115	115.5	14	194		
		116 – 120	120.5	6	200		
		Column I (all correct)					P1
	Column II (all correct)					P1	
	Column III (all correct)					P1	
	Column IV (all correct)					P1	
	(b)	$\text{Mean} = \frac{93 \times 12 + 98 \times 45 + 103 \times 67 + 108 \times 56 + 113 \times 14 + 118 \times 6}{200}$				K2	
		103 $\frac{33}{40}$ or 103.8				N1	
	(c)	Axes are drawn in the correct direction, uniform scale for $0 \leq \text{vertical axis} \leq *200$ and $90.5 \leq \text{horizontal axis} \leq 120.5$ All points plotted accurately. Smooth and continuous curve.				P1	
						K2	
						N1	
	(d)	*16				K1	
		Do not accept answer without ogive.					12

Q	Solution & Mark Scheme	Sub Mark	Mark
15	<p>(a)</p>  <p>Correct shape squares <i>EFLK</i> and <i>HIKL</i>. $FE = FL = LH$ Measurements accurate up to ± 0.2 cm (one way) and all right angles = $90^\circ \pm 1^\circ$</p>	<p>K1 K1 N1</p>	

Q	Solution & Mark Scheme	Sub Mark	Mark
	<p>(b) (i)</p> <p>Correct shape rectangles $EJNM$, $NPQU$, $IJUQ$ and a quadrant of a circle JEK. $EA > MN = NP > PQ = QI$. Measurements accurate up to ± 0.2 cm (one way) and all right angles = $90^\circ \pm 1^\circ$</p>	<p>K1 K1 N2</p>	

Q	Solution & Mark Scheme	Sub Mark	Mark
	<p>(ii)</p>  <p>Correct shape of rectangle $ADEF$, rectangle $DMUS$, square $FEKL$ and triangle DEM. $S - X$ is joined by a dashed line. $FA > FL = AD = DM > MU$. Measurements accurate up to ± 0.2 cm (one way) and all right angles = $90^\circ \pm 1^\circ$</p>	<p>K1 K1 K1 N2</p>	<p>12</p>
<p>16</p>	<p>(a) $80^\circ E$ (b) $(20+20) \times 60$ 2400 (c) $(70 + \theta) \times 60 = 6000$ $\frac{6000}{60} - 70$ $30^\circ N$ (d) (i) $(80 - 35) \times 60 \times \cos 70^\circ$ 923.45 (ii) $\frac{(80 - 35) \times 60 \times \cos 70^\circ + 6000}{12}$ 576.95</p>	<p>P2 K1 N1 K1 K1 N1 K1 N1 K2 N1</p>	<p>12</p>

Graph for Question 12



Graph for Question 14

Number of cars
Bilangan kereta

