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MODUL PINTAS
TINGKATAN 5

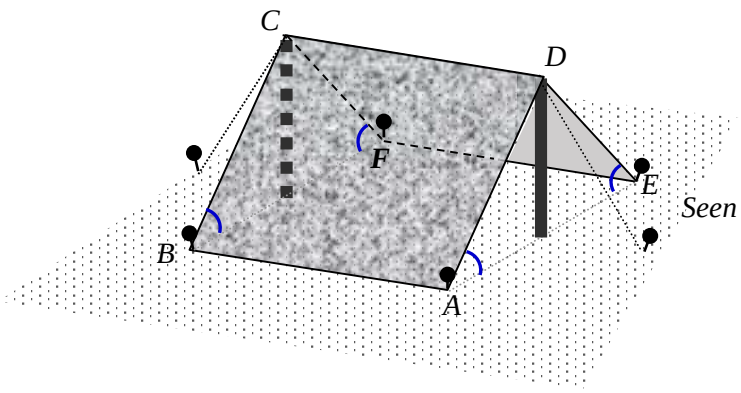
1449/2

MATHEMATICS
Kertas 2

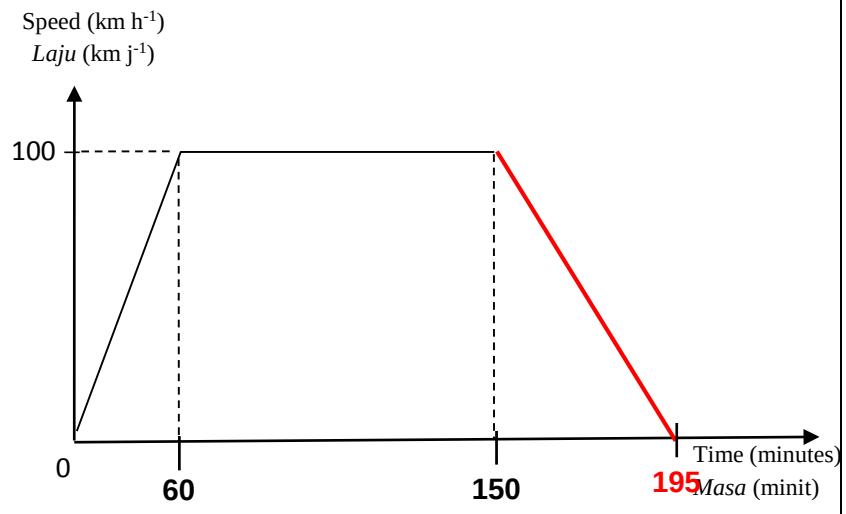
$2\frac{1}{2}$ jam

Dua jam tiga puluh minit

PERATURAN PEMARKAHAN MATHEMATICS K2 1449/2

	Marking Scheme / Skema markah	Marks	
		Submarks	Total Marks
1	$y \leq -x$ $y > x - 4$ $x \geq 0$	1 mark 1 mark 1 mark	3 marks
2	$4x(x + 4) = 9 + 16x$ $4x^2 - 9 = 0$ $(2x - 3)(2x + 3) = 0$ RM 5.50	1 mark 1 mark 1 mark 1 mark	4 marks
3	$\frac{x + 2}{y + 2} = \frac{9}{10}$ $\frac{x - 3}{y - 3} = \frac{4}{5}$ $x = \frac{9y - 2}{10}$ or $y = \frac{10x + 2}{9}$ or $x = \frac{4y + 3}{5}$ or $y = \frac{5x - 3}{4}$ **OR** $10x + 2 = 9y$ or $10x - 6 = 8y$ or equivalent or $72y = 80x + 16$ or $72y = 90x - 54$ or equivalent $10x = 70$ or $y = 8$ $x = 7$ or $y = 8$ $\frac{7}{8}$	1 mark 1 mark 1 mark 1 mark 1 mark 1 mark	6 marks
4	*(a)*  (*b*) $\angle DAE$ *or* $\angle EAD$ *or* $\angle DEA$ *or* $\angle AED$ or $\angle CBF$ or $\angle FBC$ or $\angle CFB$ or $\angle BFC$ $\sin\theta = \frac{2}{3.5}$ 34·85° *or* 34° 51’	1 mark 1 mark 1 mark 1 mark	4 marks

5.	$10c + 5g = 25\,640$ or $25c + 19g = 70\,600$ or equivalent $\begin{pmatrix}10 & 5\\25 & 19\end{pmatrix}\begin{pmatrix}c\\g\end{pmatrix}=\begin{pmatrix}25640\\70600\end{pmatrix}$ $\begin{pmatrix}c\\g\end{pmatrix}=\frac{1}{(10)(19)-(5)(25)}\begin{pmatrix}19 & -5\\-25 & 10\end{pmatrix}\begin{pmatrix}25640\\70600\end{pmatrix}$ Cow : RM 2 064 Goat: RM 1 000	1 mark 1 mark 1 mark 1 mark 1 mark	5 marks
6.	(*a*) (i) True / *Benar* (ii) If $c = -5$, then $y = 3x - 5$ *Jika* $c = -5$, *maka* $y = 3x - 5$. (*b*) If the radius of a sphere is 14 cm, then the volume of a sphere is 2744π cm^3 *Jika jejari sfera ialah* 14 cm, *maka isipadu sfera itu ialah* 2744π cm^3 *(b)* 2700° Note: 900° seen award 1 mark	1 mark 1 mark 1 mark 2 marks	5 marks
7.	$\sqrt{170^2 - 80^2} = 150$ $m_{RQ} = \frac{130 - 50}{140 - 40}$ $\frac{4}{5}(-215) + c = -22$ or $c = 150$ $y = \frac{4}{5}x + 150$	1 mark 1 mark 1 mark 1 mark	4 marks

8.	(*a*)(i)  Diagram 11 / *Rajah* 11	1 mark	5 marks
	(*b*) $100 \div \frac{45}{60}$	1 mark	
	$-133\frac{1}{3}$	1 mark	
	(*c*) $\left(\frac{1}{2}\times\frac{60}{60}\times100+100\times\frac{90}{60}+\frac{1}{2}\times100\times\frac{45}{60}\right)\div\frac{195}{60}$ or	1 mark	
	$\frac{1}{2}\left(\frac{90+195}{60}\right)(100)\div\frac{195}{60}$	1 mark	
	$73\frac{1}{13}$@73.08		
9	(*a*) {14, 16, 18, 19, 41, 46, 48, 49, 61, 64, 68, 69, 81, 84, 86, 89, 91, 94, 96, 98} Allow 2 mistakes for 1 mark	2 marks	6 marks
	(*b*) (i) {16, 49, 64, 81}	1 mark	
	$\frac{1}{5}$	1 mark	
	(ii) { 14, 16, 41, 48, 61, 84, 96}	1 mark	
	$\frac{7}{20}$	1 mark	
10	$\frac{22}{7}$ x 0.5^2 x 2	1 mark	4 marks
	$\frac{22}{7}$ x 0.45^2 x 1.95	1 mark	
	$\frac{22}{7}$ x 0.5^2 x 2 - $\frac{22}{7}$ x 0.45^2 x 1.95	1 mark	
	0.33	1 mark	

<table>
<tr><td>11</td><td>(a) $\frac{140}{360}$ x 2 x $\frac{22}{7}$ x 28 or $\frac{140}{360}$ x 2 x $\frac{22}{7}$ x 14

$\left(\frac{140}{360} \text{ x } 2 \text{ x } \frac{22}{7} \text{ x } 28\right)$ + $\left(\frac{140}{360} \text{ x } 2 \text{ x } \frac{22}{7} \text{ x } 14\right)$ + 14 + 14

$130\frac{2}{3}$ // 130.67

(b) $\frac{140}{360}$ x $\frac{22}{7}$ x 28 x 28 or $\frac{140}{360}$ x $\frac{22}{7}$ x 14 x 14

$\left(\frac{140}{360} \text{ x } \frac{22}{7} \text{ x } 28 \text{ x } 28\right)$ - $\left(\frac{140}{360} \text{ x } \frac{22}{7} \text{ x } 14 \text{ x } 14\right)$

$718\frac{2}{3}$ // 718.67</td><td>1 mark

1 mark

1 mark

1 mark

1 mark

1 mark</td><td>6 marks</td></tr>
<tr><td>12.</td><td>(a)
<table><tr><td>x</td><td>−3</td><td>1</td></tr><tr><td>y</td><td>9</td><td>5</td></tr></table>
(b) <u>Graph</u>
Axes are drawn in the correct direction,
uniform scale for $-3 \le x \le 4$ and $3 \le y \le 44$.

6 points and 2 points* plotted accurately

Smooth and continuous curve without straight line(s) and passes through all the 8 correct points $-3 \le x \le 4$ and $9 \le y \le 44$.

<u>Notes</u> : (1) 6 or 7 points plotted correctly, award 1 mark
(2) Other scale being used, subtract 1 mark

(c)(i) $16 \le y \le 18$
(ii) $x = 0.9$ ($0.8 \le x \le 1.0$) , $x = 2.2$ ($2.1 \le x \le 2.3$)
Note: Do not accept the values of x and y obtained by calculation

(d) Identify the equation $y = 18$ correctly drawn
<u>Note</u> : $y = 18$ seen, award 1
$3.0 \le x \le 3.2$</td><td>1 mark
1 mark

1 mark

2 marks

1 mark

1 mark
2 marks

2 marks

1 mark</td><td>12 marks</td></tr>
</table>

<table>
<tr>
<td>13</td>
<td>(a) (i) (0 , 5)
(ii) (−5 , −1)
Note :
(−5, −1) is marked on the diagram <u>or</u> (7, −5) is seen <u>or</u>
(7, −5) is marked on the diagram, award P1

(b)(i)(a) V = Rotation 90˚clockwise about the centre (-1, 0)
V = putaran 90˚ ikut arah jam pada pusat (-1, 0)
<u>Note:</u>
1. Rotation 90˚ clockwise <u>or</u> Rotation, centre (−1, 0) //
Putaran 90˚ ikut arah jam <u>or</u> Putaran, pusat (−1, 0), award 2 marks.
2. Rotation // Putaran, award 1 mark

(b) W = Enlargement about the centre G(2, 1) with the scale factor 2.
W = Pembesaran pada pusat G(2, 1) dengan faktor skala 2.

<u>Note</u> :
1. Enlargement, centre G(2, 1) <u>or</u> Enlargement, scale factor 2 //
Pembesaran, pusat G(2, 1) <u>or</u> Pembesaran, faktor skala 2, award 2 marks
2. Enlargement // Pembesaran, award 1 mark

(b)(ii) (32 x *2^2) − 32
<u>Note</u> :
(*2^2 × 32) award 1 mark

96</td>
<td>1 marks
2 marks

3 marks

3 marks

2 marks

1 mark</td>
<td>12 marks</td>
</tr>
<tr>
<td>14</td>
<td>(a)

<table>
<tr><td>Column I</td><td>Column II</td><td>Column III</td><td>Column IV</td></tr>
<tr><td>RM (thousand)
RM (ribu)</td><td>Upper boundry
Sempadan atas</td><td>Frequency
Kekerapan</td><td>Cummulative Frequency
Kekerapan longgokan</td></tr>
<tr><td>0·8 – 0·9</td><td>0·95</td><td>0</td><td>0</td></tr>
<tr><td>1·0 – 1·1</td><td>1·15</td><td>4</td><td>4</td></tr>
<tr><td>1·2 – 1·3</td><td>1·35</td><td>10</td><td>14</td></tr>
<tr><td>1·4 – 1·5</td><td>1·55</td><td>26</td><td>40</td></tr>
<tr><td>1·6 – 1·7</td><td>1·75</td><td>24</td><td>64</td></tr>
<tr><td>1·8 – 1·9</td><td>1·95</td><td>17</td><td>81</td></tr>
<tr><td>2·0 – 2·1</td><td>2·15</td><td>12</td><td>93</td></tr>
<tr><td>2·2 – 2·3</td><td>2·35</td><td>7</td><td>100</td></tr>
</table>

(b)
$\frac{1.05(4) + 1.25(10) + 1.45(26) + 1.65(24) + 1.85(17) + 2.05(12) + 2.25(7)}{4 + 10 + 26 + 24 + 17 + 12 + 7}$
1.658

(c) Axes are drawn in the correct direction, uniform scale for
0 ≤ vertical axis ≤ 100 and 0·95 ≤ horizontal axis ≤ 2·35

All points plotted accurately.
Smooth and continuous curve.

(d) *16</td>
<td>Column I
1 mark

Column II
1 mark

Column III
1 mark

Column IV
1 mark

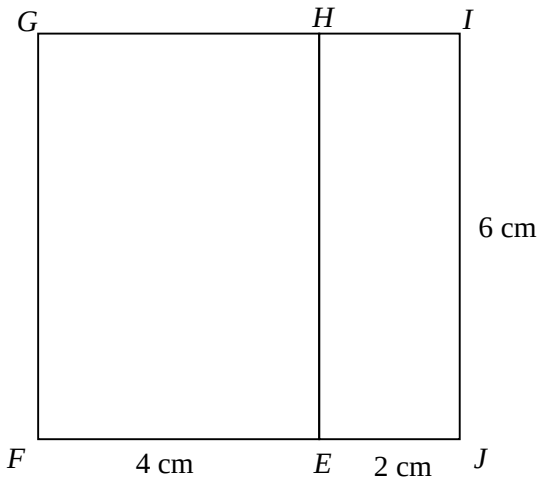
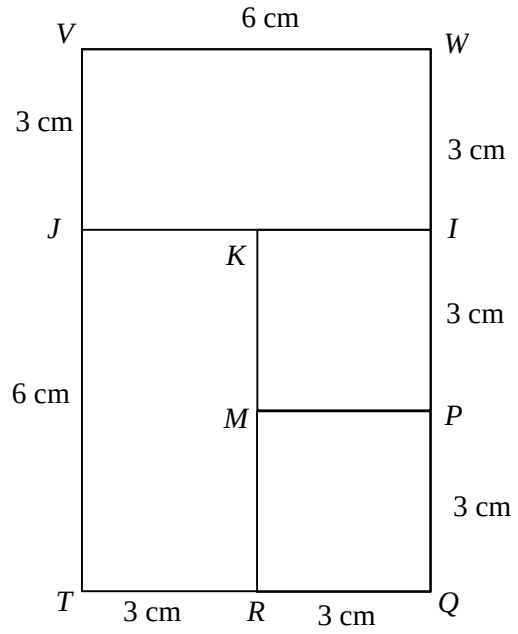
2 marks

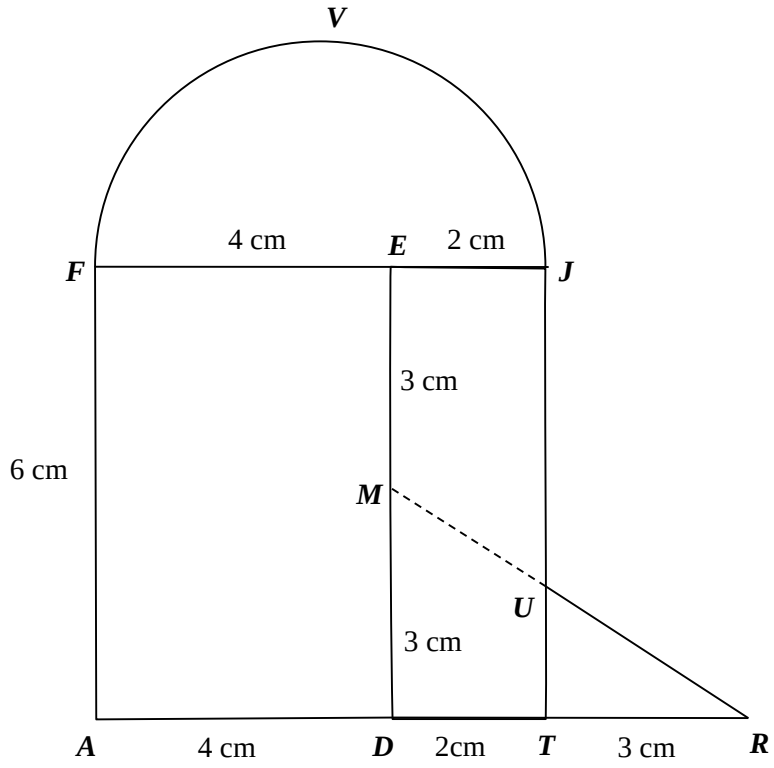
1 mark

1 mark

2 marks
1 mark

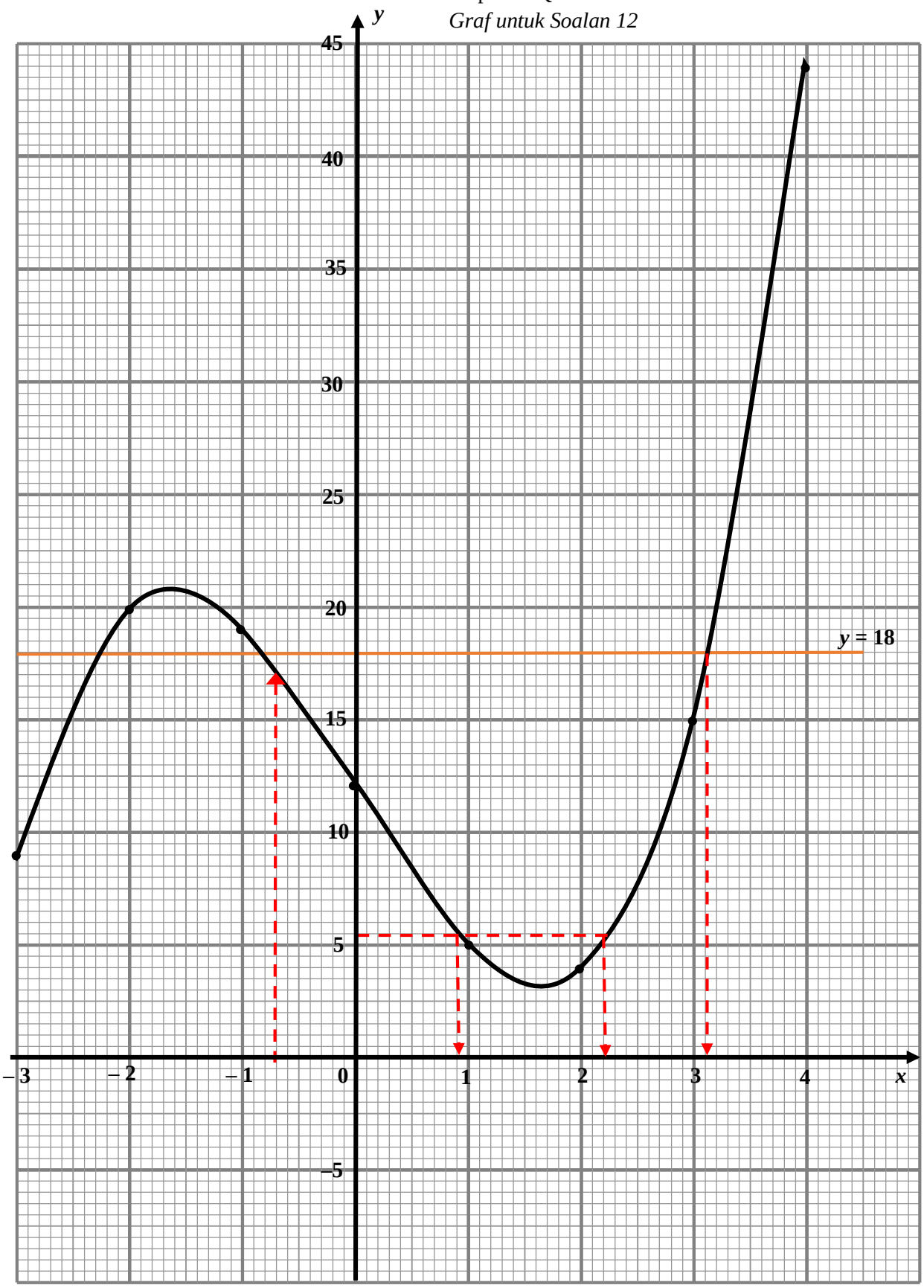
1 mark</td>
<td>12 marks</td>
</tr>
</table>

	(*a*)  Correct shape rectangles *EFJI* and *EIHG. B All solid lines.* *IJ = FJ > FE >EJ* Measurements accurate up to ± 0·2 cm (one way) and all right angles = 90º ± 1º	1 mark 1 mark 1 mark	
15	(*b*) (i)  Correct shape rectangles *TVWQ, JVWI, MKIP* and *RMPQ. All solid lines.* *TV > VW> WI = IP = PQ = QR = RT.* Measurements accurate up to ± 0·2 cm (one way) and all right angles = 90º ± 1º	1 mark 1 mark 2 marks	12 marks

15	(*b*) (ii)  Correct shape of a semi circle *FVJ*, rectangle *AFED*, rectangle *DEJT* and triangle *MDR*. *M – U* is joined by a dashed line. *AR > AF = AD > TR = DM > DT* Measurements accurate up to ± 0·2 cm (one way) and all right angles = 90º ± 1º	 1 mark 1 mark 1 mark 2 marks	
16	(a) 70° W/ *B* Note: Award 1 mark for 70° or *θ*° W / *B* is seen	2 marks	
	(*b*) (90 – 65) × 60 1500	1 mark 1 mark	
	(*c*) (65 + θ) × 60 = 6300 $\frac{6300}{60} - 65$ 40° *S*	1 mark 1 mark 1 mark	
	(*d*)(i) (110 + 35) × 60 × cos 65° 3676.78 (ii) $\frac{6300 + (110 + 35) \times 60 \times \cos 65°}{720}$ 13.86	2 marks 1mark 1 mark	

Graph for Question 12

Graf untuk Soalan 12



Graph for Question 14
Graf untuk Soalan 14