



**MODUL PINTAS 2024**

**TINGKATAN 5**

**MATEMATIK**

**Kertas 2**

**1449/2**

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

Dua jam tiga puluh minit

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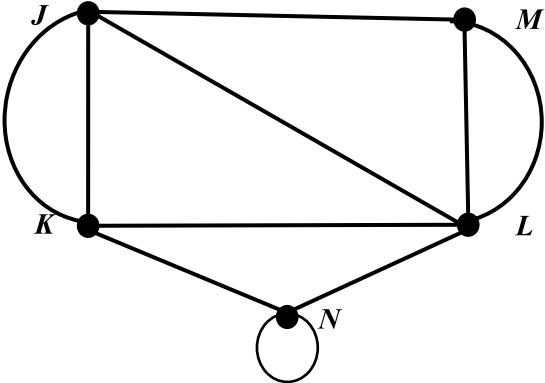
# **PERATURAN PEMARKAHAN**

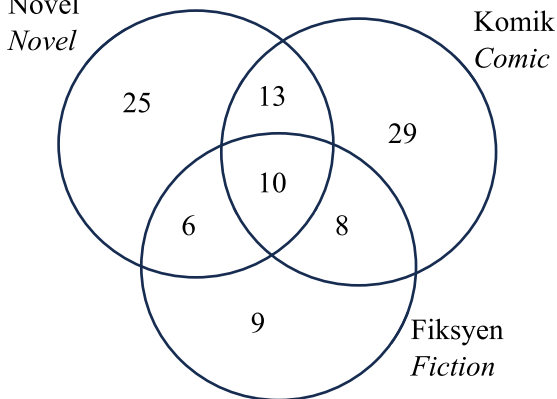
## **MATEMATIK K2**

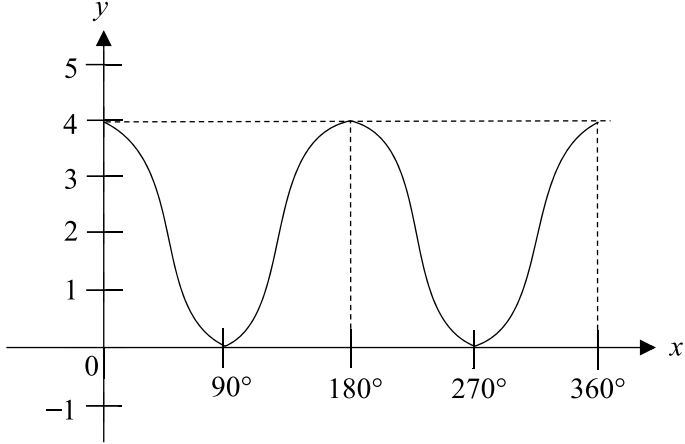
**1449/2**

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Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
1	(a) $128 = \frac{k(4)^3}{\sqrt{25}}$ atau setara / or equivalent  $r = \frac{10s^3}{\sqrt{t}}$ atau setara / or equivalent	1  1	
	(b) $20 = \frac{10s^3}{\sqrt{16}}$ atau setara / or equivalent  2	1  1	4
2	<div data-bbox="432 752 1023 1312" data-label="Figure"> </div> <p data-bbox="272 1357 1094 1458">Nota / Note: Jangan terima lokus Y yang dilukis tanpa menggunakan jangka lukis. Do not accept locus Y drawn without using compass.</p>	1	
	(b) $\frac{90}{360} \times 2 \times \frac{22}{7} \times 7$ atau setara / or equivalent  11	1  1	3

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
3	 <p data-bbox="280 689 1038 757">Kesemua tepi dan gelung dilukis dengan betul tanpa anak panah <i>All edges and loop drawn correctly without arrow.</i></p> <p data-bbox="280 781 416 813">Nota/Note:</p> <ol data-bbox="331 817 1161 1032" style="list-style-type: none"> <li>Terima 2 kesilapan, beri 1 markah. <i>Accept 2 mistakes, award 1 mark.</i></li> <li>Graf terarah dengan semua tepi dan gelung dilukis dengan betul, beri 1 markah. <i>Directed graph with all edges and loops drawn correctly, award 1 mark.</i></li> </ol> <p data-bbox="280 1037 316 1068">20</p>	2       1	       3
4	<p data-bbox="210 1133 722 1200">(a) Antejadian : <math>x</math> ialah gandaan bagi 10 <i>Antecedent : <math>x</math> is a multiple of 10</i></p> <p data-bbox="280 1240 671 1308">Akibat : <math>x</math> ialah gandaan 5 <i>Consequent : <math>x</math> is a multiple of 5</i></p> <p data-bbox="210 1335 632 1402">(b) Jika <math>\cos x = 0.5</math> maka <math>x = 60^\circ</math> <i>If <math>\cos x = 0.5</math> then <math>x = 60^\circ</math></i></p> <p data-bbox="280 1442 421 1473">Palsu/<i>False</i></p>	1  1  1  1	      4
5	<p data-bbox="210 1507 879 1574">(a) Putaran <math>90^\circ</math> ikut arah jam pada pusat (13,10) <i>Clockwise rotation of <math>90^\circ</math> about the centre (13,10)</i></p> <p data-bbox="280 1601 427 1632">Nota / Note:</p> <ol data-bbox="331 1637 1187 1839" style="list-style-type: none"> <li>Putaran <math>90^\circ</math> ikut arah jam <u>atau</u> Putaran <math>90^\circ</math> pada pusat (13,10) beri 2 markah. <i>Clockwise rotation of <math>90^\circ</math> or Rotation about centre (13,10) award 2 marks</i></li> <li>Putaran beri 1 markah <i>Rotation award 1 mark.</i></li> </ol> <p data-bbox="210 1865 655 2007">(b) (17,12) Nota / Note: (17,8) kelihatan, beri 1 markah. <i>(17,8) seen, award 1 mark.</i></p>	3       2	       5

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
6 (a)	 <p>Nota / Note:</p> <ol style="list-style-type: none"> <li>6, 13, 25, 29 di kedudukan yang betul, beri 1 markah. <i>6, 13, 25, 29 at correct position, award 1 mark.</i></li> <li>Jangan terima jawapan yang ditulis sebagai unsur. <i>Do not accept answer written as element</i></li> </ol>	2	
6 (b)	(i) 46 (ii) 27	1 1	<b>4</b>
7 (a)	$\frac{90}{360} \times 2 \times \frac{22}{7} \times 4.8$ atau setara / <i>or equivalent</i> 7.543 atau / <i>or</i> $\frac{264}{35}$ atau / <i>or</i> $7\frac{19}{35}$	1 1	
7 (b)	$\frac{90}{360} \times \frac{22}{7} \times 12^2 + \frac{90}{360} \times \frac{22}{7} \times 4.8^2$ atau setara / <i>or equivalent</i> $\frac{22\ 968}{175}$ atau / <i>or</i> $131\frac{43}{175}$ atau / <i>or</i> 131.25	1 1	<b>4</b>
8 (a)	Mengkaji semula dan menyemak kemajuan <i>Reviewing and revising the progress</i>	1	
8 (b)	Lydia: $3500 + 400 + 800 - 1\ 300 - 650 - 200$ atau setara / <i>or equivalent</i> Julia: $3\ 000 + 150 + 850 - 1\ 800 - 700 - 300$ atau setara / <i>or equivalent</i>	1 1	
	Lydia kerana pendapatan lebih Lydia adalah lebih banyak berbanding Julia. <i>Lydia because surplus of income of Lydia is more than Julia</i>	1	<b>4</b>

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah	
9	(a) 10	1	4	
	(b) $m = \frac{1}{2}$ $-7 = \frac{1}{2}(-2) + c$ atau setara / or equivalent $y = \frac{1}{2}x - 6$	1  1  1		
10	(a) 140 220	1  1		2
	(b)(i)  <p data-bbox="300 1355 454 1384">Nota / Note :</p> <p data-bbox="300 1411 1173 1478">3 titik maksimum dan 2 titik minimum yang betul dilihat <u>atau</u> 2 lengkung kos lengkap dilihat beri 1 markah</p> <p data-bbox="300 1500 1173 1568">3 maximum points and 2 minimum points correctly seen or 2 complete cos curves seen award 1 mark</p>	1		
	(b)(ii) Kitaran lengkap graf kos akan menjadi 4 <u>atau</u> setara A complete cycle of the cos graph will be 4 or equivalent	1	5	

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
11	(a) $\frac{22}{7} \times 25^2 \times 68$ atau / or $133\,571\frac{3}{7}$ atau setara / or equivalent  $\frac{3}{4} \times 15.8 \times 14$ atau / or $\frac{3}{4} \times 15.8 \times 14 \times 6$ atau setara / or equivalent  $\frac{3}{4} \times 15.8 \times 14 \times 6 \times 150$ atau / or 149 310  Tidak cukup kerana $133\,571\frac{3}{7} < 149\,310$ atau setara  <i>Not enough because <math>133\,571\frac{3}{7} &lt; 149\,310</math> or equivalent</i>	1  1  1  1	8
	(b) $30 \times 60$ $0.7 \times 30 \times 60$ atau / or 1 260  $\frac{0.7 \times 30 \times 60}{*133571\frac{3}{7}} \times 100\%$  0.94%	1  1  1  1	
12	(a) $m = -2$ $n = -6$	1  1	10
	(b)(i) $3x + 6y = 90$ atau setara / or equivalent $2x + 5y = 72$	1  1	
	(b)(ii) $\begin{pmatrix} 3 & 6 \\ 2 & 5 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 90 \\ 72 \end{pmatrix}$ atau setara / or equivalent  $\frac{1}{(3)(5) - (2)(6)} \begin{pmatrix} 5 & -6 \\ -2 & 3 \end{pmatrix} \begin{pmatrix} 90 \\ 72 \end{pmatrix}$ atau setara / or equivalent  manggis/mangosteen = RM 6 , durian = RM 12 Nota / Note: 1. * (matriks songsang) $\begin{pmatrix} 90 \\ 72 \end{pmatrix}$ atau setara beri 1 markah * (inverse matrix) $\begin{pmatrix} 90 \\ 72 \end{pmatrix}$ or equivalent award 1 mark 2. Jangan terima * (matriks songsang) = $\begin{pmatrix} 3 & 6 \\ 2 & 5 \end{pmatrix}$ Atau * (matriks songsang) = $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ Do not accept * (inverse matrix) = $\begin{pmatrix} 3 & 6 \\ 2 & 5 \end{pmatrix}$ or * (inverse matrix) = $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ 3. Terima sebarang 2 anu yang berbeza Accept any 2 different unknowns	1  1  1,1	
	(b)(iii) $(6 \ 12) \begin{pmatrix} 4 \\ 2 \end{pmatrix}$ atau / or $\begin{pmatrix} 4 \\ 2 \end{pmatrix} (6 \ 12)$  48 <b>dan</b> cukup 48 and enough	1  1	

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
13	(a)(i) 34 33 dan 41	1 1	
	(a)(ii) $\frac{21+23+24+27+31+34+34+35+42+43}{10}$ <b>Atau / or</b> $\frac{17+26+29+33+33+38+41+41+44+45}{10}$	1	
	31.4 <b>dan / and</b> 34.7	1	
	(b) Faris $\sqrt{\frac{21^2+23^2+24^2+27^2+31^2+34^2+34^2+35^2+42^2+43^2}{10}} - *31.4^2$ <i>atau setara / or equivalent</i> 7.255 Danesh $\sqrt{\frac{17^2+26^2+29^2+33^2+33^2+38^2+41^2+41^2+44^2+45^2}{10}} - *34.7^2$ <i>atau setara / or equivalent</i> 8.427 Faris akan dipilih kerana nilai skor <b>lebih konsisten</b> dan nilai sisihan piawai lebih kecil <u>atau</u> setara <i>Faris will be chosen because the score value is <b>more consistent</b> and the standard deviation value is smaller or equivalent</i>  <i>atau</i> Danesh akan dipilih kerana nilai min Danesh > min Faris <i>Danesh will be chosen because the value of Danesh's mean &gt; Faris's mean</i> Atau setara / or equivalent Nota: Mesti menunjukkan jalan kerja sisihan piawai untuk markah justifikasi. <i>Need to show the working for standard deviation to obtain mark for justification.</i>	1 1 1 1 1	

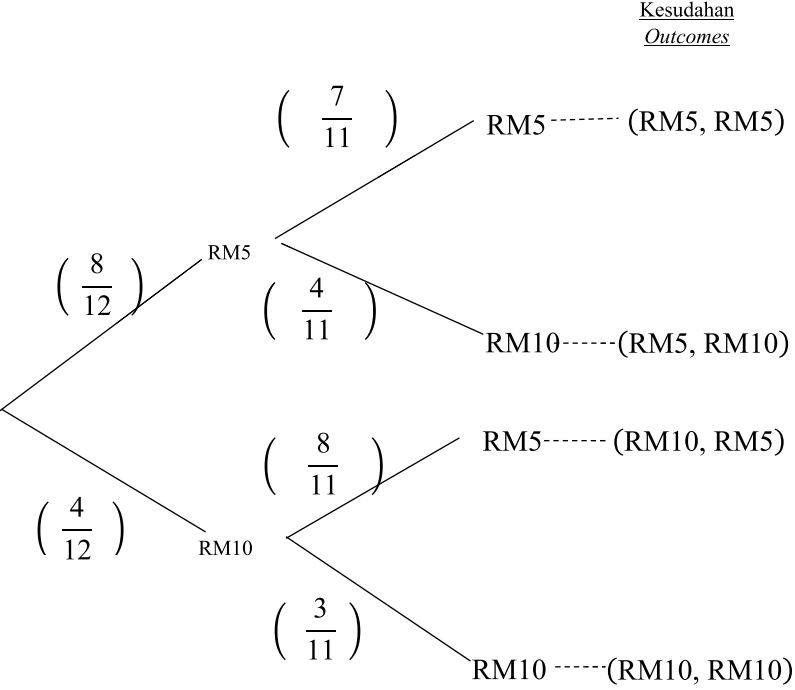
9

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah						
14	(a) <table border="1" data-bbox="327 271 1118 347"> <tr> <td style="text-align: center;"><math>x</math></td> <td style="text-align: center;">-3.5</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;"><math>y</math></td> <td style="text-align: center;">2.25</td> <td style="text-align: center;">0</td> </tr> </table>	$x$	-3.5	1	$y$	2.25	0	1	
	$x$	-3.5	1						
	$y$	2.25	0						
	(b) Kedua-dua paksi dilukis dalam arah yang betul dengan skala seragam untuk $-4 \leq x \leq 2$ dan $-4 \leq y \leq 5$ . <i>Both axes are drawn in correct direction with uniform scale for <math>-4 \leq x \leq 2</math> and <math>-4 \leq y \leq 5</math>.</i>	1							
	6 titik dan *2 titik di plot dengan betul. <i>6 points and *2 points are plotted correctly.</i>	2							
Nota/ Note : 7 atau 6 titik di plot dengan betul, beri 1 markah. <i>7 or 6 points plotted correctly reward 1 mark.</i>									
Graf yang licin dan melalui semua titik. <i>Smooth graph and continuous curve passing through all points.</i>	1								
(c)(i)	-3 dan / and 1	1							
(ii)	$x = 1$ (1 , -4)	1 1	8						
15	(a) $x + y \leq 80$ atau setara / or equivalent	1							
	$y \leq 2x$ atau setara / or equivalent	1							
	$y \geq 10$	1							
	(b) Rujuk graf di halaman 12 <i>Refer to the graph on the page 12</i>  $x + y = 80$ dilukis dengan betul / drawn correctly $x = 2y$ dilukis dengan betul / drawn correctly $y = 10$ dilukis dengan betul / drawn correctly  Rantau yang memenuhi ketaksamaan linear dilorek dengan betul <i>The region that satisfies the linear inequality is correctly shaded</i>	1 1 1 1							
	(c)(i) 30	1							
(ii) $55(70) + 20(10)$  4 050 Nota/ Note : Nilai diperoleh betul daripada kawasan lorekkan yang salah hanya beri 1 markah untuk jalan kerja. <i>Values are obtained from wrong shading part, only award 1 mark for working.</i>	1 1	10							

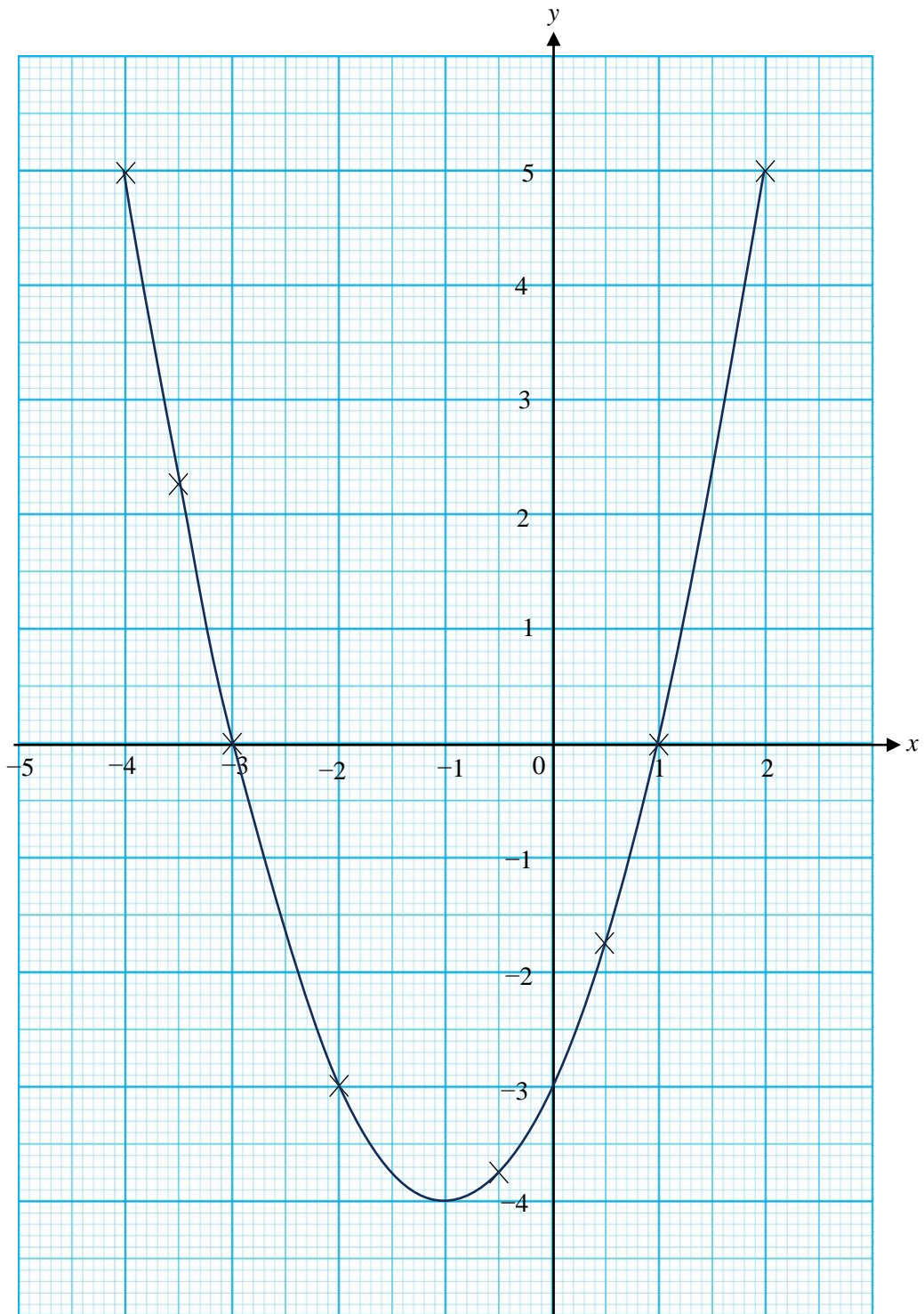


Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah	
16	(a)(i)	$x + x - 3$ atau setara / <i>or equivalent</i> $2x - 3$ atau setara / <i>or equivalent</i>	1 1	
	(a)(ii)	$2x - 3 = 15$ atau setara / <i>or equivalent</i> 9	1 1	
	(b)(i)	$K + S = 66$ atau / <i>or</i> $14.5K + 12S = 847$ atau setara / <i>or equivalent</i> <b><u>Kaedah penghapusan / Elimination method</u></b> $14.5K + 14.5S = 957$ atau / <i>or</i> $12K + 12S = 792$ $2.5S = 110$ atau / <i>or</i> $2.5K = 55$ $K = 22$ $S = 44$ <b>ATAU / OR</b> <b><u>Kaedah penggantian / Substitution method</u></b> $K = 66 - S$ atau / <i>or</i> $S = 66 - K$ $14.5(66 - S) + 12S = 847$ atau setara / <i>or equivalent</i> $K = 22$ $S = 44$  Nota / Notes : 1. Terima apa-apa 2 anu berbeza yang mewakili ikan kembung dan ikan sardin <i>Accept any 2 different unknowns represent for mackerel and sardine.</i>	1  1 1 1 1  1 1 1 1	
	(b)(ii)	1 : 2	1	
	(c)(i)	Tinggi / <i>High</i>	1	
	(c)(ii)	$\frac{8.5}{100} \times 15\,000$ atau / <i>or</i> $\frac{25}{100} \times 15\,000$  $\frac{15\,000}{2}$ atau / <i>or</i> 7 500 atau setara / <i>or equivalent</i>  8 775 <b>dan / and</b> 3 750 <b><u>ATAU / OR</u></b> 58.5% <b>dan / and</b> 25% Syarikat Mesra Jelita, jumlah pulangan pelaburan lebih tinggi <i>Syarikat Mesra Jelita, higher total return</i> <b><u>ATAU / OR</u></b> Syarikat Mesra Jelita, nilai pulangan pelaburan lebih tinggi <i>Syarikat Mesra Jelita, higher return on investment</i>	1  1  1  1	

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
17	<p>(a)(i) <math>L = xy - \frac{1}{2} \left( \frac{1}{2}x \right) \left( \frac{2}{3}y \right)</math></p> <p><math>L = \frac{5}{6}xy</math></p> <p>(a)(ii) <math>L = \frac{5}{6}(18)(3)</math></p> <p>atau 45 dilihat or 45 seen</p> <p>(a)(iii) <math>40 = \frac{5}{6}(4)(y)</math></p> <p><math>y = 12</math></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>5</p>
	<p>(b) (i) <math>\frac{200}{x} - \frac{200}{x+20} = \frac{30}{60}</math></p> <p><math>x^2 + 20x - 800 = 0</math></p> <p><math>(x - 80)(x + 100) = 0</math></p> <p><math>x = 80</math></p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	
	<p>(b)(ii) <math>80 + 20 = 100</math></p> <p>Tidak , Encik Farid tidak mematuhi peraturan had laju lebuhraya kerana <math>100 &gt; 90</math>. No, Encik Farid did not follow the highway speed limit because <math>100 &gt; 90</math></p>	<p>1</p> <p>1</p>	<p>6</p>

Soalan Question	Cadangan Jawapan Suggested Answers	Sub Markah	Markah
17	<p style="text-align: right;"><u>Kesudahan</u> <u>Outcomes</u></p>  <p>Nota / Note:</p> <ol style="list-style-type: none"> <li>Semua nilai kebarangkalian atau kesudahan betul beri 1 markah. <i>All probabilities value are correct award 1 mark</i></li> <li>Semua nilai kebarangkalian ata kesudahan betul beri 1 markah <i>All outcomes are correct award 1 mark.</i></li> </ol>	2	
	<p>(c)(ii)</p> $\left(\frac{8}{12} \times \frac{4}{11}\right) + \left(\frac{4}{12} \times \frac{8}{11}\right)$ $\frac{16}{33}$	1  1	4  <b>15</b>

Graf untuk soalan 14(b)  
Graph for question 14(b)



Graf untuk soalan 15(b)  
Graph for question 15(b)

