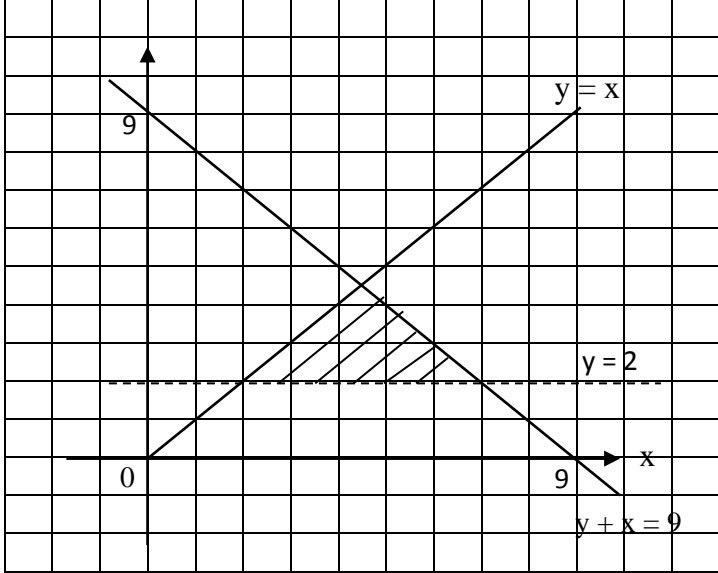


ISKEMA PEPERIKSAAN PERCUBAAN SPM
2018

NO SOALAN	PERMARKAHAN	SUB MARKAH	JUM MARKAH
1	<p>Lukis garis $y = 2$ (garis putus-putus)</p> <p>Lorek kawasan yang betul</p> 	<p style="text-align: center;">1</p> <p style="text-align: center;">2</p>	3
2	<p>a) $\angle ADB / \angle BDA$</p> <p>b) $\tan \angle ADB = \frac{14}{13}$</p> <p style="text-align: center;">$\angle ADB = 47.12^\circ$ ATAU $47^\circ 7'$</p>	<p>1</p> <p>1</p> <p>1</p>	3
3	<p>Isipadu jar = $\pi \times \left(\frac{3d}{2}\right)^2 \times 12$</p> <p>Isipadu gelas = $\pi \times \left(\frac{d}{2}\right)^2 \times t$</p> <p style="text-align: center;">$\pi \times \left(\frac{3d}{2}\right)^2 \times 12 = 6 \left(\pi \times \left(\frac{d}{2}\right)^2 \times t\right)$</p> <p style="text-align: center;">$t = 18$</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	4
4 KBAT	<p>$x =$ bilangan itik</p> <p>$y =$ bilangan kerbau</p> <p>$x + y = 68$ ———— (1) \checkmark 1 markah</p> <p>$2x + 4y = 226$ ———— (2) \checkmark 1 markah</p> <p>Dari (1) $x = 68 - y$ atau setara.</p> <p>$2(68 - y) + 4y = 226$</p>	<p>1</p> <p>1</p>	

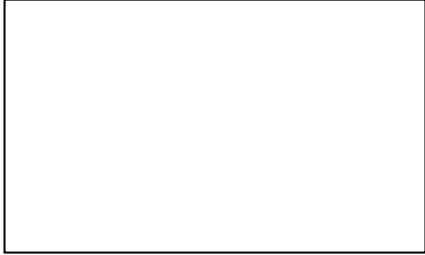
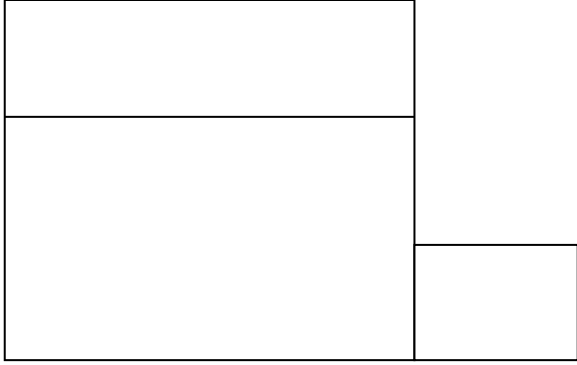
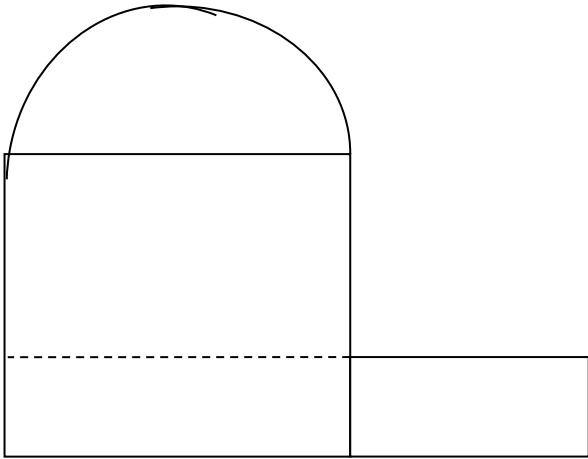
	$2y = 90$ $y = 45 \checkmark \text{ 1 markah}$ $x = 23 \checkmark \text{ 1 markah}$ <p>bilangan itik = 23 ekor bilangan kerbau = 45 ekor</p>	1 1	4
5	a) (i) Benar (ii) Jika $x^3 - 1 = 8$ maka $x = 3$. b) atau c) Sudut pendalaman heksagon ialah 720° d) $2n^3 + 2, \checkmark$ $n = 0,1,2,3,\dots,\checkmark$ (bergantung kepada jawapan atas)	1 1 1 1 1	6
6	$(2x - 1)(2x - 3) = 63 \checkmark$ $4x^2 - 8x + 60 = 0$ $x^2 - 2x - 15 = 0$ $(x + 3)(x - 5) = 0 \checkmark$ $x = -3, x = 5 \checkmark$ $KL = 2x - 3$ $= 2(5) - 3$ $= 7 \text{ cm } \checkmark$	1 1 1 1	4
7 KBAT	a) $\begin{pmatrix} 40 & 60 \\ 30 & 70 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 130 \\ 135 \end{pmatrix} \checkmark \text{ 1 markah}$ b) $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{40(70) - (30)60} \begin{pmatrix} 70 & -60 \\ -30 & 40 \end{pmatrix} \begin{pmatrix} 130 \\ 135 \end{pmatrix} \checkmark \text{ 1 markah}$ $= \frac{1}{1000} \begin{pmatrix} 1000 \\ 1500 \end{pmatrix} \checkmark \text{ 1 markah}$ $= \begin{pmatrix} 1 \\ 1.5 \end{pmatrix}$ $x = \text{RM } 1 \checkmark \text{ 1 markah}$ $y = \text{RM } 1.5 \checkmark \text{ 1 markah}$	1 1 1 1 1	5

8	<p>a) $k = 1$.</p> <p>b) kecerunan VU = $\frac{1-(-1)}{-4-0} = -\frac{1}{2}$</p> <p>VU selari dgn TS, kecerunan VU = kecerunan TS = $-\frac{1}{2}$</p> <p>$y = mx + c$</p> <p>$2 = -\frac{1}{2}(4) + c$</p> <p>$c = 4$</p> <p>Persamaan garis lurus TS : $y = -\frac{1}{2}x + 4$</p> <p>c) ganti $y = 0$</p> <p>$-\frac{1}{2}x + 4 = 0$</p> <p>$x = 8$</p> <p>pintasan -x = 8</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>6</p>
9	<p>a) Ruang sampel ,</p> <p>$S = \{ 3B, 3E, 3A, 3N, 3S, 5B, 5E, 5A, 5N, 5S, 6B, 6E, 6A, 6N, 6S \}$</p> <p>b) $\{ 6B, 6N, 6S \}$</p> <p>$= \frac{3}{15} = \frac{1}{5}$</p> <p>c) $\{ 3B, 3E, 3A, 3N, 3S, 5E, 5A, 6E, 6A \}$</p> <p>$= \frac{9}{15} = \frac{3}{5}$</p>	<p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>6</p>
10	<p>a) Perimeter seluruh rajah</p> <p>$= 14 + \left(\frac{90}{360} \times 2 \times \frac{22}{7} \times 14\right) + 7 + \left(\frac{120}{360} \times 2 \times \frac{22}{7} \times 21\right) + 21$</p> <p>$= 108 \text{ cm}$</p> <p>b) Luas kawasan berlerek</p> <p>$= \left(\frac{90}{360} \times \frac{22}{7} \times 14 \times 14\right) + \left(\frac{120}{360} \times \frac{22}{7} \times 21 \times 21\right) - \left(\frac{1}{2} \times 14 \times 7\right)$</p> <p>$- \left(\frac{120}{360} \times \frac{22}{7} \times 7 \times 7\right)$</p> <p>$= 515\frac{2}{3} \text{ cm}^2$</p>	<p>2</p> <p>1</p> <p>2</p> <p>1</p>	<p>6</p>

11	a) 40 ms^{-1}	1	5
	b) kadar perubahan laju $= \frac{40-0}{15-0}$	1	
	$= \frac{8}{3} \text{ ms}^{-2}$	1	
	c) Beza jarak = 30 m		
	Jarak zarah J - Jarak zarah K = 30	1	
	$(2T - 15)(20) - 20T = 30$	1	
$T = 16.5$			

NO SOALAN	PERMARKAHAN (BAHAGIAN B)	SUB MARKAH	JUM MARKAH						
12	a) <table border="1" style="margin-left: 40px;"> <tr> <td>x</td> <td>1</td> <td>4</td> </tr> <tr> <td>y</td> <td>12</td> <td>15</td> </tr> </table>	x	1	4	y	12	15	1, 1	12
x	1	4							
y	12	15							
b) Rujuk Graf	4								
c) i) $16.0 \leq y \leq 17.00$	1								
ii) $6.70 \leq x \leq 6.80$	1								
d) Persamaan garis lurus : $y = 3x - 2$	1								
Lukis garis lurus $y = 3x - 2$	1								
$-0.5 \leq x \leq -0.60$	1								
$4.50 \leq x \leq 4.60$	1								
13	a) i) $(2, 3)$ ii) $K(-2, 5) \rightarrow K'(3, 4) \rightarrow K''(3, -2)$	1 2	12						
b) U = Putaran 90° lawan arah jam pada pusat $(-1, 7)$	3								
W = Pembesaran dengan faktor skala 3 pada pusat E $(0, 4)$	3								
c) luas imej = $(f. \text{skala})^2 \times \text{luas objek}$									
$= (3)^2 \times 14$	1								
$= 126 \text{ m}^2$									
Luas kawasan berlerek = $126 - 14$	1								
$= 112 \text{ m}^2$	1								

NO SOALAN	PERMARKAHAN	SUB MARKAH	JUM MARKAH																					
14	<table border="1" data-bbox="357 331 1023 591"> <thead> <tr> <th>Markah</th> <th>T.Tengah</th> <th>Kekerapan</th> </tr> </thead> <tbody> <tr> <td>30 - 39</td> <td>34.5</td> <td>1</td> </tr> <tr> <td>40 - 49</td> <td>44.5</td> <td>4</td> </tr> <tr> <td>50 - 59</td> <td>54.5</td> <td>8</td> </tr> <tr> <td>60 - 69</td> <td>64.5</td> <td>10</td> </tr> <tr> <td>70 - 79</td> <td>74.5</td> <td>6</td> </tr> <tr> <td>80 - 89</td> <td>84.5</td> <td>1</td> </tr> </tbody> </table> <p data-bbox="357 613 683 645">b) i) Kelas Mod = 60 - 69</p> <p data-bbox="389 676 1091 882">ii) Min = $\frac{1(34.5)+4(44.5)+8(54.5)+10(64.5)+6(74.5)+1(94.5)}{30}$ = $\frac{1825}{30}$ = 60.83 (2 tempat perpuluhan)</p> <p data-bbox="357 913 528 945">c) Rujuk Graf</p> <p data-bbox="357 976 507 1008">d) 7 kelas.</p>	Markah	T.Tengah	Kekerapan	30 - 39	34.5	1	40 - 49	44.5	4	50 - 59	54.5	8	60 - 69	64.5	10	70 - 79	74.5	6	80 - 89	84.5	1	<p data-bbox="1219 555 1257 586">1,2</p> <p data-bbox="1219 645 1241 676">1</p> <p data-bbox="1219 707 1241 739">2</p> <p data-bbox="1219 860 1241 891">1</p> <p data-bbox="1219 949 1241 981">4</p> <p data-bbox="1219 1039 1241 1070">1</p>	<p data-bbox="1369 1012 1407 1043">12</p>
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30 - 39	34.5	1																						
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80 - 89	84.5	1																						
16	<p data-bbox="357 1131 753 1162">a) Kedudukan P (25° U, 150° B)</p> <p data-bbox="357 1193 552 1247">b) $\frac{4200}{60} = 70^\circ$</p> <p data-bbox="411 1272 695 1303">latitud K = 70 - 25</p> <p data-bbox="523 1335 667 1366">x = 45° S</p> <p data-bbox="357 1397 826 1451">c) Beza longitud = $\frac{3154}{60 \cos 25} = 58^\circ$</p> <p data-bbox="411 1482 721 1514">longitud L = 58 - 30</p> <p data-bbox="555 1545 699 1576">y = 28° B</p> <p data-bbox="357 1608 730 1751">d) Masa = $\frac{3154 + (25+30)60}{560}$ = 11.53 jam</p>	<p data-bbox="1219 1131 1241 1162">2</p> <p data-bbox="1219 1193 1241 1225">1</p> <p data-bbox="1219 1256 1241 1288">1</p> <p data-bbox="1219 1319 1241 1350">1</p> <p data-bbox="1219 1404 1241 1435">2</p> <p data-bbox="1219 1467 1241 1498">1</p> <p data-bbox="1219 1529 1241 1561">1</p> <p data-bbox="1219 1615 1241 1646">2</p> <p data-bbox="1219 1709 1241 1740">1</p>	<p data-bbox="1369 1709 1407 1740">12</p>																					

NO SOALAN	PERMARKAHAN	SUB MARKAH	JUM MARKAH
15	<p>a)</p>  <p>4 cm</p> <p>6 cm</p> <p>b)</p>  <p>2 cm</p> <p>6 cm</p> <p>6 cm</p> <p>2 cm</p> <p>2 cm</p> <p>c)</p>  <p>4 cm</p> <p>2 cm</p> <p>4 cm</p> <p>6 cm</p>	3	4
		5	12

