

MATEMATIK
SEPTEMBER 2024



MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM)
CAWANGAN KELANTAN

MODUL KOLEKSI ITEM
PERCUBAAN SPM
2024

MATEMATIK
KERTAS 1 & 2

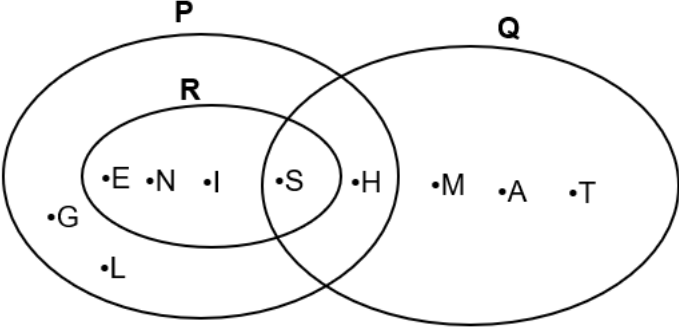
UNTUK KEGUNAAN PEMERIKSA SAHAJA

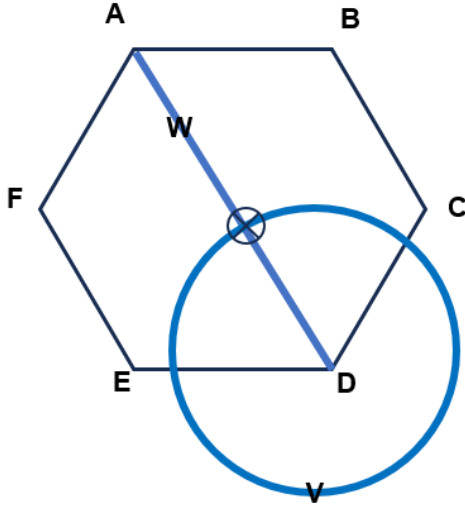
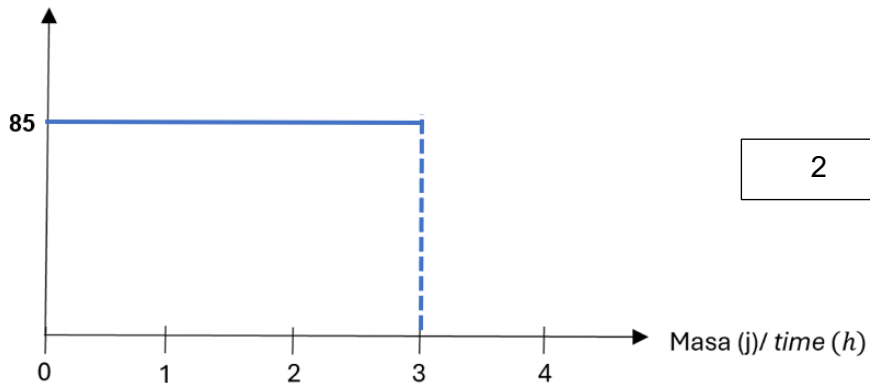
SKEMA
PEMARKAHAN

KERTAS 1

1	C	11	D	21	C	31	B
2	B	12	C	22	B	32	B
3	A	13	C	23	D	33	D
4	C	14	A	24	A	34	A
5	B	15	C	25	D	35	C
6	A	16	D	26	A	36	C
7	B	17	C	27	D	37	A
8	C	18	C	28	C	38	A
9	D	19	B	29	B	39	D
10	D	20	B	30	B	40	C

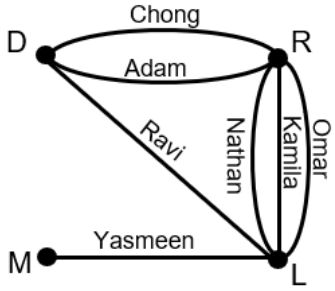
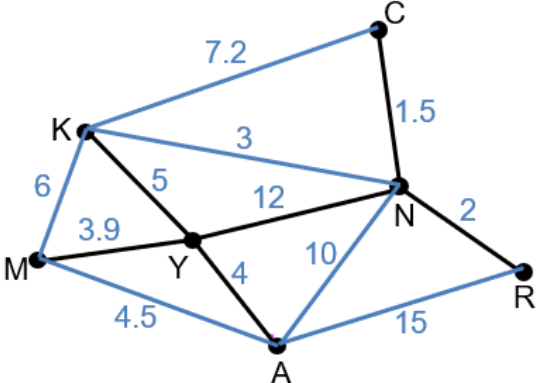
KERTAS 2

SOALAN	PERATURAN	MARKAH	
1	(a) 60 cm	1	3
	(b) $\sqrt{60^2 + 35^2}$	1	
	69.46	1	
2	(a) 16	1	
	(b)(i)	3	
			
	(ii) {G,L}	1	
3	(a) $y > x$ atau setara	1	4
	$y + x \geq 5$ atau setara	1	
	(b) Bil. Pelajar lelaki = 3	1	
	Bil. Pelajar perempuan = 4	1	
4	(a) $\left(\frac{-8+0}{2}, \frac{-2+6}{2}\right)$	1	4
	$(-4, 2)$	1	
	(b) $\frac{2-(-2)}{-4-0}$ atau setara	1	
	$y = -x - 2$	1	

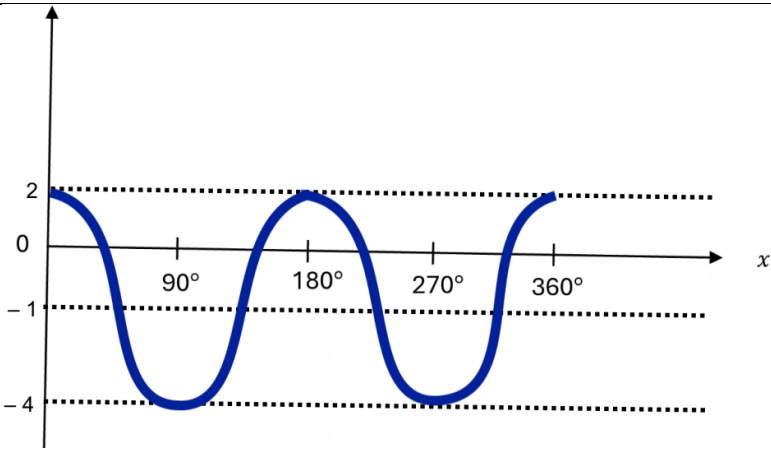
5	(a)	Bukan semua nombor ganjil ialah nombor perdana	1	4
		Benar	1	
	(b)	$n^2, n = 2, 3, 4, \dots$	2	
		Beri 1m untuk n^2		
6	(a) (b)		3	3
7	(a)	$\frac{255}{\left(\frac{300}{60}\right)}$	1	4
		51	1	
	(b)	Laju (kmj^{-1}) / Speed (kmh^{-1}) 		
8		$372.60 + \left(\frac{130\,800 - 1000}{1000}\right) \times 26$	1	4
		3747.40		
		0.75×3747.40 atau setara	1	



		2810.55		
		$\frac{70}{100} \times 2810.55$	1	
		1967.84	1	
9		115 000 – 650 – 650 – 9 000 – 2 500 – 4000 – 7000 –1050 – 1570	1	
		88 580	1	4
		$4600 + \frac{21}{100} (88\,580 - 70\,000) - 200$	1	
		8 301.80	1	
10	(a)	Pendapatan aktif Elaun = 1 400 dan Pendapatan pasif Sewa = 1 500	1	
		Jumlah pendapatan bulanan = 11 500	1	
		Pendapatan lebihan atau deficit = –150	1	
	(b)	Aliran tunai negatif	1	5
		Mengurangkan perbelanjaan petrol dengan menaiki kenderaan awam. Atau Mengurangkan perbelanjaan utiliti dengan penjimatan elektrik. Atau Mengurangkan perbelanjaan dapur. (Terima jawapan yang munsubah)	1	
11	(a)(i)	Bucu mewakili <u>Buah-buahan</u>	1	9
		Tepi mewakili <u>Nama pelajar</u>	1	

	(ii)	 D = Durian R = Rambutan L = Langsung M = Manggis Bucu ditanda dengan betul Tepi dan pemberat ditanda dengan betul Bucu dan tepi ditanda dengan betul tanpa pemberat beri 1m Terima jawapan yang munasabah	1 1	
	(b)(i)	 Tepi dan pemberat betul Tepi tanpa pemberat beri 2m Terima 2 kesalahan untuk 1m	3	
		$M-A-Y-K-C-N-R = 4.5+4+5+7.2+1.5+2$ $= 24.2$	1 1	
12	(a)	Teselasi	1	9
		Teselasi gabungan hexagon dan segi tiga	1	
	(b)(i)	(8,7)	1	
	(ii)	(9,0) → (10,7)	2	

	(c)(i)		2																																					
	(ii)	$3^2 \times 7.5^2$	1																																					
		67.5	1																																					
13	(a)	<table><thead><tr><th>Derma (RM) Donation (RM)</th><th>Kekerapan Frequency</th><th>Sempadan atas Upper Boundary</th><th>Kekerapan Longgokan Cumulative Frequency</th></tr></thead><tbody><tr><td>6 - 10</td><td>6</td><td>10.5</td><td>6</td></tr><tr><td>11 - 15</td><td>11</td><td>15.5</td><td>17</td></tr><tr><td>16 - 20</td><td>14</td><td>20.5</td><td>31</td></tr><tr><td>21 - 25</td><td>13</td><td>25.5</td><td>44</td></tr><tr><td>26 - 30</td><td>11</td><td>30.5</td><td>55</td></tr><tr><td>31 - 35</td><td>15</td><td>35.5</td><td>70</td></tr><tr><td>36 - 40</td><td>7</td><td>40.5</td><td>77</td></tr><tr><td>41 - 45</td><td>3</td><td>45.5</td><td>80</td></tr></tbody></table> Semua kekerapan betul 2m Semua sempadan atas betul 1m	Derma (RM) Donation (RM)	Kekerapan Frequency	Sempadan atas Upper Boundary	Kekerapan Longgokan Cumulative Frequency	6 - 10	6	10.5	6	11 - 15	11	15.5	17	16 - 20	14	20.5	31	21 - 25	13	25.5	44	26 - 30	11	30.5	55	31 - 35	15	35.5	70	36 - 40	7	40.5	77	41 - 45	3	45.5	80	3	9
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36 - 40	7	40.5	77																																					
41 - 45	3	45.5	80																																					
	(b)	Paksi dilukis dengan betul dan skala seragam	1																																					
		Semua titik diplot dengan betul Nota: 6 atau 7 titik diplot dengan betul beri 1 markah	2																																					
		Graf licin dan melalui semua titik. Graf rujuk m/s 8	1																																					
	(c)(i)	$20 \leq P_{40} \leq 22$	1																																					

		$53 \leq y \leq 56$	2	
14	(a)	$x = -2$	1	10
		$y = 3$	1	
	(b)(i)	$35P + 47Q = 248.50$ atau $-P + Q = 1.10$	1	
		$\begin{pmatrix} 35 & 47 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} P \\ Q \end{pmatrix} = \begin{pmatrix} 248.50 \\ 1.10 \end{pmatrix}$	1	
		$\frac{1}{35(1) - (-1)(47)} \begin{pmatrix} 1 & -47 \\ 1 & 35 \end{pmatrix} \begin{pmatrix} 248.50 \\ 1.10 \end{pmatrix}$	1	
		$P = 2.40$	1	
		$Q = 3.50$	1	
	(ii)	$2.40 - \left(\frac{10}{100} \times 2.40\right)$ atau $3.50 - \left(\frac{20}{100} \times 2.40\right)$ atau setara	1	
		$(2.16 \quad 2.80) \begin{pmatrix} 15 \\ 12 \end{pmatrix}$ atau setara	1	
		66	1	
	(a) (i)	amplitude = 3 dan tempoh = 180°	2	8
	(ii)		2	
15	(b)(i)	$\cos 150^\circ$ atau $-\cos 30^\circ$	1	
	(ii)	$-\frac{\sqrt{3}}{2}$ atau -0.8660	1	
		$-\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2}$	1	
		0	1	

16	(a)(i)	$\left(2 \times \frac{22}{7} \times 7\right) + 14 + 14$	1	15
		72	1	
	(ii)	0.72×17.50	1	
		12.60	1	
	(b)(i)	$(14 \times 14) + \left(\frac{22}{7} \times 7^2\right)$	1	
		$\frac{350}{2400} @ \frac{7}{48} @ 0.1456$	1	
	(ii)	$\frac{7}{48} \times \frac{41}{48} \times \frac{7}{48}$	1	
		0.01817	1	
	(c)(i)	$1.75 = k(2.5)^2 + 2.5 + 1.5$	1	
		$k = -0.36$	1	
	(ii)	$f(x) = 0.36x^2 + x - 1.5$	1	
	(d)	$0.012 \times 1.5 \times 2 + 0.027 \times 0.018 + 0.012 \times 0.018$ $+ \frac{1}{2} \times 0.018 \times 0.025$ $0.012 \times 1.5 \times 2 @ 0.027 \times 0.018 @$ $0.012 \times 0.018 @ \frac{1}{2} \times 0.018 \times 0.025$ Berikan 1m	3	
		3.693×10^{-2}	1	
17	(a)	$\frac{0.70 \times 6000}{2 \times 6000} \times 100$ atau setara	2	15
		35	1	
	(b)	$28 = k \frac{200}{5}$	1	
		$k = 0.7$	1	
		$140 = 0.7 \frac{L}{8}$	1	
		1600	1	
	(c)	$y^2 + (23 - y)^2 = (\sqrt{289})^2$ atau setara	1	
		$2y^2 - 46y + 240 = 0$	1	
		$(y - 8)(y - 15) = 0$	1	



		$y = 15$	1	
	(d)	$\frac{1}{2} \times 4 \times \frac{22}{7} \times 0.4^2 + 2 \times \frac{22}{7} \times 0.4 \times 1.2 +$ $\frac{22}{7} \times 0.4 \times \sqrt{0.4^2 + 0.6^2}$	3	
		4.929	1	

Jawapan 13 (b)

