

MODUL PINTAS 2025 MATEMATIK TAMBAHAN
PERATURAN PEMARKAHAN TINGKATAN 5 KERTAS 2

SOALAN			PEMARKAHAN	SUB MARKAH	MARKAH
1	(a)	(i)	$x^2 - 5x - 4 = 0$	N1	
		(ii)	Hasil tambah punca = $\frac{-(-5)}{1}$ @ Hasil darab punca = $\frac{-4}{1}$	K1	
			Hasil tambah punca = 5 & Hasil darab punca = -4	N1	
	(b)		$- \left[x^2 + 8x + \left(\frac{8}{2} \right)^2 - \left(\frac{8}{2} \right)^2 \right] + 9$	K1	
			$h(x) = -(x+4)^2 + 25$	N1	
			25 dan $x = -4$	N1	
					6
2	(a)	(i)	$\overrightarrow{PQ} = -\underline{a} + \underline{b}$	N1	
			$\overrightarrow{OM} = \overrightarrow{OP} + \overrightarrow{PM}$ OR $\underline{a} + \frac{1}{2}(-\underline{a} + \underline{b})$	K1	
			$\frac{1}{2}\underline{a} + \frac{1}{2}\underline{b}$	N1	
		(i)	$\frac{3}{10}\underline{a} + \frac{3}{10}\underline{b}$	K1	
			$-\frac{7}{10}\underline{a} + \frac{3}{10}\underline{b}$	N1	
	(b)	(i)	$\frac{1}{k} \left(-\frac{7}{10}\underline{a} + \frac{3}{10}\underline{b} \right) = -\underline{a} + \lambda \underline{b}$	K1	
			$k = \frac{7}{10}$ AND $\lambda = \frac{3}{7}$	N1	
			$\overrightarrow{ON} : \overrightarrow{NB} = 3 : 4$	N1	
					8

3	(a)		Panjang lengkok PQ dan jejaringnya adalah sama.	P1	
	(b)	(i)	$x \left(60 \times \frac{\pi}{180} \right)$	K1	
			$\frac{1}{3} \pi x$	N1	
		(ii)	$12 = \frac{1}{3} \pi x$	K1	
			11.46	N1	
					5
4	(a)	(i)	$(7 \times 3)^{6x} = 21^1$	K1	
			$x = \frac{1}{6}$	N1	
		(ii)	$y = \frac{6 - \sqrt{3}}{\sqrt{12}} \times \frac{\sqrt{12}}{\sqrt{12}}$	K1	
			$\sqrt{3} - \frac{1}{2}$	N1	
	(b)		Alternatif A Penukaran logaritma kepada indeks $r = 3^m$ or $9^n = s$ @ Alternatif B Penukaran asas log $\frac{\log_3 s}{\log_3 9}$	K1	
			Aplikasi hukum hasil darab $\log_3 (3^m)^2 + \log_3 (9^n)^3$ @ Guna mana-mana hukum log $2 \log_3 r + 3 \log_3 s$	K1	
			$2m + 6n$	N1	
					7

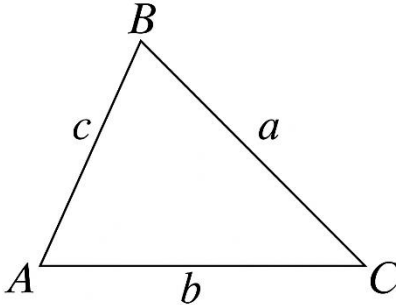
5	(a)		${}^{2n}P_n = \frac{2n!}{(2n-n)!}$	K1	
			$2n \times (2n-1) \times (2n-2)!$	K1	
			$n = 3$	N1	
	(b)		$\frac{(8-1)!}{2}$	K1	
			2520	N1	
	(c)		${}^5C_2 \times {}^7C_2 \times {}^4C_2$	K1	
			1260	N1	
					7
6	(a)	(i)	$a = 5000, \quad r = 0.98 \quad \text{dilihat}$	P1	
			$5000(0.98)^{4-1}$	K1	
			4705.96	N1	
		(ii)	$\frac{5000(1-0.98^7)}{1-0.98}$	K1	
			32968.62	N1	
	(b)	(i)	2	P1	
			$54 = 2 + (n-1)(4)$	K1	
			14	N1	
					8

7	(a)	(i)	$7C_3(0.4)^3(0.6)^{7-3}$	K1	
			0.2903	N1	
		(ii)	$1 - \left[{}^nC_0(0.4)^0(0.6)^n \right] > 0.95$	K1	
			$n > \frac{\log_{10} 0.05}{\log_{10} 0.6}$	K1	
			6	N1	
	(b)		${}^3C_3 p^3 q^{3-3} = \frac{8}{27} \quad @ \quad {}^3C_0 p^0 q^{3-0} = \frac{1}{27}$	K1	
			$p = \frac{2}{3} \quad \& \quad q = \frac{1}{3}$	N1	
			$\sqrt{{}^{(3)}\left(\frac{2}{3}\right)\left(\frac{1}{3}\right)}$	K1	
			0.8165	N1	
					9
8	(a)	(i)	$b = \frac{3}{2} \text{ dan } c = -0.5$	N1N1	
		(ii)	4 titik penyelesaian ditandai pada garis $y = 0$	K1	
			4	N1	
	(b)		Guna $\cos 2x = 2 \cos^2 x - 1$	K1	
			Kiri = Kanan	N1	
	(c)		$3(1 - 2 \sin^2 x) - \sin x = 2$	K1	
			Sudut rujukan $x = 19.47^\circ$ atau $x = 30^\circ$	P1	
			$x = 19.47^\circ, 160.53^\circ$ atau $x = 210^\circ, 330^\circ$	N1	

			19.47°,160.53°,210°,330°	N1								
					10							
9	(a)		<table><tr><td>log₁₀ y</td><td>0.45</td><td>0.31</td><td>0.20</td><td>0.09</td><td>-0.05</td><td>-0.18</td></tr></table>	log ₁₀ y	0.45	0.31	0.20	0.09	-0.05	-0.18	N1	
log ₁₀ y	0.45	0.31	0.20	0.09	-0.05	-0.18						
	(b)		Rujuk lampiran A									
			- Paksi-paksi betul dan skala seragam dari titik pertama hingga terakhir - sekurang-kurangnya 1*titik diplot betul	K1								
			6 *titik diplot betul	K1								
			Garis penyuaian terbaik	N1								
	(c)	(i)	y = 3.715 ↔ 3.802	N1								
		(ii)	log ₁₀ y = − (log ₁₀ q)x + log ₁₀ p	P1								
		(ii)	Syarat (0.69 ≤ c ≤ 0.71) log ₁₀ p = *c	K1								
			p = *5.012	N1								
			−log ₁₀ q = *m	K1								
			q = 1.155	N1								
					10							
10	(a)		$\frac{5-3}{3-7}$ & $y-5 = -\frac{1}{2}(x-3)$	K1								
			2y = −x + 13 @ setara	N1								
	(b)	(i)	$\frac{1}{2} \left \begin{bmatrix} 3(-2) + (-8)(3) + 7(5) \\ 5(-8) + (-2)(7) + 3(3) \end{bmatrix} \right $	K1								

			25	N1	
			$\frac{EA}{AC} = \frac{\left(\frac{75}{2}\right)}{25}$	K1	
			3:2	N1	
		(iii)	$\frac{2x+3(7)}{3+2} = 3 \quad @ \quad \frac{2(y)+3(3)}{3+2} = 5$	K1	
			$(-3,8)$	N1	
	(c)		$\sqrt{[x-(-3)]^2 + (y-8)^2} = \frac{3}{2}\sqrt{(x-7)^2 + (y-3)^2}$	N1	
			$x^2 + y^2 - 30x + 2y + 46 = 0$	N1	
					10
11	(a)		$\left(\frac{4}{25}\right)\frac{x^2}{2} + c$	K1	
			$8 = \frac{2}{25}(10)^2 + c \quad \text{dan selesaikan } c$ $c = 0$	K1	
			$y = \frac{2}{25}x^2$	N1	
	(b)		Kamir $\int_{-10}^{10} \frac{2x^2}{25} dx = \left[\frac{2}{25} \left(\frac{x^3}{3} \right) \right]_{-10}^{10}$	K1	
			Guna had $\int_{-10}^{10} = \left[\left(\frac{2}{25} \left(\frac{10^3}{3} \right) \right) - \left(\frac{2}{25} \left(\frac{(-10)^3}{3} \right) \right) \right]$	K1	
			$(20 \times 8) - \left[\frac{2}{25} \left(\frac{x^3}{3} \right) \right]_{-10}^{10}$	K1	
			$\frac{320}{3} \quad @ \quad \text{setara}$	N1	
	(c)		Kamir $\pi \int_0^8 \left(\frac{25}{2} y \right) dy = \pi \left[\frac{25}{4} y^2 \right]_0^8$	K1	
			Guna had $\pi \left[\left(\frac{25}{4} (8)^2 \right) - 0 \right]$	K1	

			400π	N1	
					10
12	(a)		$v = 10 + 3(0) - 0^2$ & $v = 10$	N1	
	(b)		$v = 0$ & <i>selesaikan persamaan kuadratik</i>	K1	
			$t = 5$	N1	
	(c)		Bezakan v terhadap t & samakan dengan 0 $3 - 2t = 0$	K1	
			Gantikan $t = \left(\frac{3}{2}\right)^*$ $v_{\max} = 10 + 3\left(\frac{3}{2}\right) - \left(\frac{3}{2}\right)^2$	K1	
			12.25	N1	
	(d)		Kamirkan v terhadap t	K1	
			Gantikan $t = 5$ @ $t = 8$ ke dalam s	K1	
			$\frac{275}{6} + \left -\frac{81}{2} \right $	K1	
			$86\frac{1}{3}$ @ setara	N1	
					10
13	(a)		$\frac{16.10}{p} \times 100 = 115$ @ $\frac{q}{12.00} \times 100 = 110$ @ $\frac{9.45}{9.00} \times 100 = r$	K1	
			$p = 14.00$ @ $q = 13.20$ @ $r = 105$	N1	
			$p = 14.00$ & $q = 13.20$ & $r = 105$	N1	3
	(b)		20 dilihat	P1	

			$\frac{(120 \times 25) + (115 \times 15) + (110 \times 10) + (105 \times 20) + (130 \times 30)}{25 + 15 + 10 + 20 + 30}$	K1	
			118.25	N1	3
	(c)		$\frac{P_{2023}}{2560} \times 100 = 118.25$	K1	
			3027.20	N1	2
	(d)		$\frac{118.25}{100} = \frac{117}{I_{\frac{2025}{2023}}}$	K1	
			1.057	N1	2
					10
14	(a)			K1	
			$\text{Luas } ABC = \frac{1}{2} \times b \times h @ \sin C = \frac{h}{a}$	K1	
			$\text{Luas } ABC = \frac{1}{2} \times b \times (a \sin C)$	K1	
			$\text{Luas } ABC = \frac{1}{2} ab \sin C$	N1	
	(b)	(i)	$\frac{x}{\sin 32^\circ} = \frac{24}{\sin 116^\circ}$	K1	
			14.15	N1	
		(ii)	$x^2 = 14.15^2 + 12^2 - 2 \cdot (14.15)(12) \cos 64^\circ$	K1	

			13.98	N1	
		(iii)	$\frac{1}{2} \times 26.15 \times 24 \times \sin 32^\circ$	K1	
			166.29°	K1	
					10
15	(a)		$x + y \leq 20$	N1	
			$15x + 25y \leq 400$ / $3x + 5y \leq 80$	N1	
	(b)		$x - y \leq 3$	N1	
			Bilangan jam kelas memasak melebihi kelas menjahit selebih-lebihnya 3 jam.	N1	
	(c)		Lukis dengan betul sekurang-kurangnya satu garis lurus dan *ketaksamaan yang melibatkan x dan y	K1	
			Lukis dengan betul *semua garis lurus dan *ketaksamaan yang melibatkan x dan/atau y Nota: terima garis putus-putus dan garis padu	N1	
			Rantau dilabel R dengan betul	N1	
	(d)		$k = 350x + 450y$	P1	
			Garis fungsi objektif dan gantian titik (10,10)	K1	
			8000	N1	
					10



Kertas graf untuk Soalan 9
Graph paper for Question 9



