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)	$\overrightarrow{PQ} = -\underset{\sim}{a} + \underset{\sim}{b}$	N1	
			$\overrightarrow{OM} = \overrightarrow{OP} + \overrightarrow{PM}$ OR $\underset{\sim}{a} + \frac{1}{2}(-\underset{\sim}{a} + \underset{\sim}{b})$	K1	
			$\frac{1}{2}\underset{\sim}{a} + \frac{1}{2}\underset{\sim}{b}$	N1	
		(i)	$\frac{3}{10}\underset{\sim}{a} + \frac{3}{10}\underset{\sim}{b}$	K1	
			$-\frac{7}{10}\underset{\sim}{a} + \frac{3}{10}\underset{\sim}{b}$	N1	
	(*b*)	(i)	$\frac{1}{k}\left(-\frac{7}{10}\underset{\sim}{a} + \frac{3}{10}\underset{\sim}{b}\right) = -\underset{\sim}{a} + \lambda\underset{\sim}{b}$	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 jejarinya 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)	$(7\times3)^{6x}=21^{1}$	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

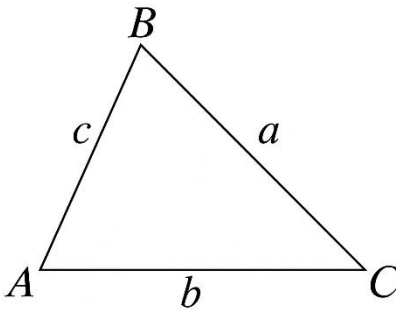
5	(*a*)		${}^{2n}P_n = \dfrac{2n!}{(2n-n)!}$	K1	
			$2n \times (2n-1) \times (2n-2)!$	K1	
			$n = 3$	N1	
	(*b*)		$\dfrac{(8-1)!}{2}$	K1	
			2520	N1	
	(*c*)		${}^{5}C_2 \times {}^{7}C_2 \times {}^{4}C_2$	K1	
			1260	N1	
					7
6	(*a*)	(i)	$a = 5000,$ r = 0.98 dilihat	P1	
			$5000(0.98)^{4-1}$	K1	
			4705.96	N1	
		(ii)	$\dfrac{5000(1-0.98^7)}{1-0.98}$	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	
			$n>\dfrac{\log_{10}0.05}{\log_{10}0.6}$	K1	
			6	N1	
	(*b*)		${}^3C_3p^3q^{3-3}=\dfrac{8}{27}$ @ ${}^3C_0p^0q^{3-0}=\dfrac{1}{27}$	K1	
			$p=\dfrac{2}{3}$ & $q=\dfrac{1}{3}$	N1	
			$\sqrt{(3)\left(\dfrac{2}{3}\right)\left(\dfrac{1}{3}\right)}$	K1	
			0.8165	N1	
					9
8	(*a*)	(i)	$b=\dfrac{3}{2}$ dan $c=-0.5$	N1N1	
		(ii)	4 titik penyelesaian ditanda 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	

			$19.47^\circ, 160.53^\circ, 210^\circ, 330^\circ$	N1	
					10
9	(*a*)		$\log_{10} y$ | 0.45 | 0.31 | 0.20 | 0.09 | -0.05 | -0.18	N1	
	(*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)	$y = 3.715 \leftrightarrow 3.802$	N1	
		(ii)	$\log_{10} y = -(\log_{10} q)x + \log_{10} p$	P1	
		(ii)	Syarat $(0.69 \le c \le 0.71)$ $\log_{10} p = *c$	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)	$\frac{1}{2}\left\|\begin{matrix}[3(-2)+(-8)(3)+7(5)]- \\ [5(-8)+(-2)(7)+3(3)]\end{matrix}\right\|$	K1	

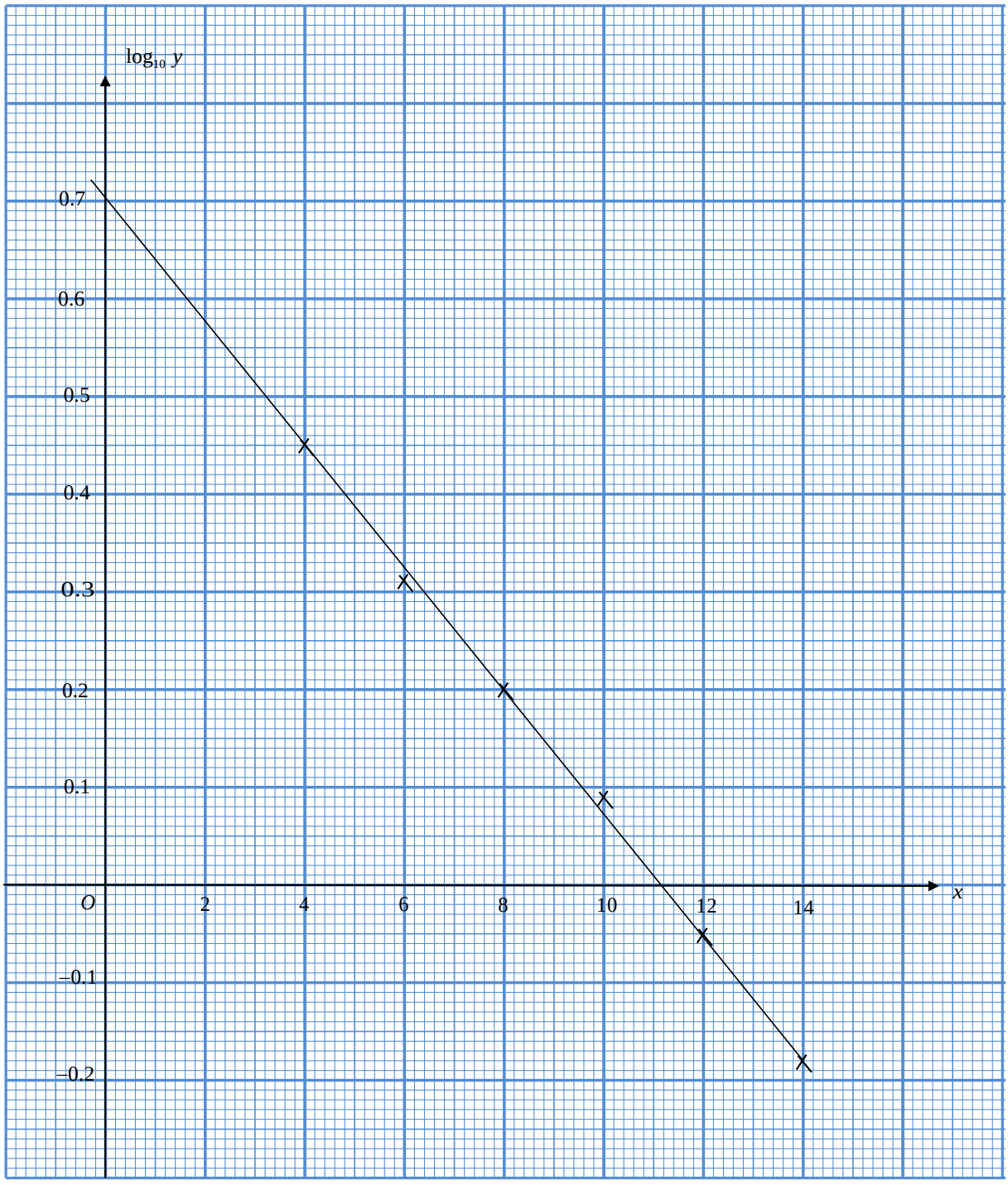
			25	N1	
			$\frac{EA}{AC}=\frac{\left(\frac{75}{2}\right)}{25}$	K1	
			$3:2$	N1	
		(iii)	$\frac{2x+3(7)}{3+2}=3 \quad @ \quad \frac{2(y)+3(3)}{3+2}=5$	K1	
			$(-3,8)$	N1	
	(*c*)		$\sqrt{[x-(-3)]^2+(y-8)^2}=\frac{3}{2}\sqrt{(x-7)^2+(y-3)^2}$	N1	
			$x^2+y^2-30x+2y+46=0$	N1	
					10
11	(*a*)		$\left(\frac{4}{25}\right)\frac{x^2}{2}+c$	K1	
			$8=\frac{2}{25}(10)^2+c$ 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	
			$\frac{320}{3}$ @ 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*)		$v = 0$ & *selesaikan persamaan kuadratik*	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	
			$\frac{275}{6} + \left\lvert -\frac{81}{2} \right\rvert$	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	

			$\frac{(120\times25)+(115\times15)+(110\times10)+(105\times20)+(130\times30)}{25+15+10+20+30}$	K1	
			118.25	N1	3
	(*c*)		$\frac{P_{2023}}{2560}\times100=118.25$	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	
			Luas $ABC=\frac{1}{2}\times b\times h$ @ $\sin C=\frac{h}{a}$	K1	
			Luas $ABC=\frac{1}{2}\times b\times(a\sin C)$	K1	
			Luas $ABC=\frac{1}{2}ab\sin C$	N1	
	(*b*)	(i)	$\frac{x}{\sin32°}=\frac{24}{\sin116°}$	K1	
			14.15	N1	
		(ii)	$x^2=*14.15^2+12^2-2*(14.15)(12)\text{kos }64°$	K1	

			13.98	N1	
		(iii)	$\frac{1}{2}\times$*$26.15\times 24\times \sin 32°$	K1	
			$166.29°$	K1	
					10
15	(*a*)		$x+y\le 20$	N1	
			$15x+25y\le 400$ / /$3x+5y\le 80$	N1	
	(*b*)		$x-y\le 3$	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**



LAMPIRAN : SOALAN 15