MAJLIS PENGETUA SEKOLAH MALAYSIA
NEGERI SELANGOR

PENILAIAN INTERVENSI TERBILANG AKADEMIK SELANGOR (PINTAS) 2025
MATEMATIK TAMBAHAN TINGKATAN 5
Kertas 1 **3472/1(PP)**
Peraturan Pemarkahan

UNTUK KEGUNAAN PEMERIKSA SAHAJA

SET 1

PEPERIKSAAN PERCUBAAN SPM 2025
MATEMATIK TAMBAHAN KERTAS 1
PERATURAN PERMARKAHAN

NO SOALAN			JAWAPAN	MARKAH
1			$\frac{1}{2}\times(8)^2\times 5.084$	K1
			162.7	N1
				2
2			Guna $m=\frac{7-1}{5-2}$	K1
			$c=-3$ @ $\ln y-1=2(x-2)$ @ $\ln y-7=2(x-5)$	K1
			$\ln y=2x-3$	K1
			$y=e^{2x-3}$	N1
				4
3	(*a*)		$S_n=\frac{a(1-r^n)}{1-r}$ **&** $r\to\infty, r^n\to 0$	K1
			$S_\infty=\frac{a(1-0)}{1-r}$ **&** $S_\infty=\frac{a}{1-r}, \lvert r\rvert<1$	N1
	(*b*)		$a=x$ (boleh tersirat) **&**	
			$r=\frac{-\frac{2}{3}x}{x}=-\frac{2}{3}$ @ $r=\frac{\frac{4}{9}x}{-\frac{2}{3}x}=-\frac{2}{3}$ @ $r=\frac{-\frac{8}{27}x}{\frac{4}{9}x}=-\frac{2}{3}$	K1
			$\frac{x}{1-\left(-\frac{2}{3}\right)}$	K1
			$\frac{3}{5}x$	N1
				5
4	(*a*)		$\frac{dy}{dx}=3(3-4x)^2(-4)$	K1
			-12	N1
	(*b*)		$^*-12\times m_2=-1$ **&**	
			$y-(-1)=\ ^*\frac{1}{12}(x-1)$ **OR** $-1=\ ^*\frac{1}{12}(1)+c$ & cari nilai c	K1
			$y=\frac{1}{12}x-\frac{13}{12}$ @ setara	N1
				4
5.	(*a*)		$(x-5)(x+1)>0$ **&**	

	$x<-1$	$-1<x<5$	$x>5$
$(x-5)$	–	–	+
$(x+1)$	–	+	+
$(x-5)(x+1)$	+	–	+

			$x<-1$, $x>5$	K1 N1
	(*b*)		$\alpha+\beta=-\frac{h}{2}$ **&** $\alpha\beta=-\frac{2}{2}$	P1
			$\frac{1}{\alpha+1}+\frac{1}{\beta+1}$ **&** $\frac{1}{\alpha+1}\times\frac{1}{\beta+1}$	K1
			$\frac{1}{\alpha+1}+\frac{1}{\beta+1}=\frac{-\frac{h}{2}+2}{-1+\left(-\frac{h}{2}\right)+1}$ @ $\frac{1}{\alpha+1}\times\frac{1}{\beta+1}=\frac{1}{-1+\left(-\frac{h}{2}\right)+1}$	K1
			$\frac{1}{\alpha+1}+\frac{1}{\beta+1}=\frac{h-4}{h}$ **&** $\frac{1}{\alpha+1}\times\frac{1}{\beta+1}=-\frac{2}{h}$	K1
			$hx^2-(h-4)x-2=0$ @ $hx^2+(4-h)x-2=0$	N1
				7

NO SOALAN			JAWAPAN	MARKAH
6	(*a*)	(i)	$\sqrt{89}$ @ 9.434	N1
		(ii)	$\sin\angle AOB = \frac{5}{{}^{*}\sqrt{89}}$ @ $\text{kos}\angle AOB = \frac{8}{{}^{*}\sqrt{89}}$ @ $\tan\angle AOB = \frac{5}{8}$	K1
			2.024	N1
	(*b*)		${}^{*}\sqrt{89} \times {}^{*}2.024$	K1
			$^{*}AO + {}^{*}OD + {}^{*}AED$ (Syarat : $^{*}AO = {}^{*}OD < {}^{*}AED$)	K1
			37.96	N1
				6
7	(*a*)		$\underline{u} = \begin{pmatrix}2\\3\end{pmatrix}$	N1
			$\underline{v} = \begin{pmatrix}m-5\\-4\end{pmatrix}$	N1
	(*b*)	(i)	${}^{*}\begin{pmatrix}2\\3\end{pmatrix} = \lambda\ {}^{*}\begin{pmatrix}m-5\\-4\end{pmatrix}$	K1
			$\frac{7}{3}$	N1
		(ii)	$\lvert\underline{u}\rvert = \sqrt{(2)^2 + (3)^2}$ @ $\lvert v\rvert = \sqrt{\left(-\frac{8}{3}\right)^2 + (-4)^2}$	K1
			3: 4	N1
				6
8.	(*a*)		$\frac{p-x}{x-v} = \frac{n}{m}$	K1
			$mp + nv = mx + nx$ **&** $x = \frac{mp+nv}{m+n}$	N1
	(*b*)		Guna $m = \frac{-1-4}{2-(-2)}$	K1
			${}^{*}\left(-\frac{5}{4}\right) \times m_2 = -1$	K1
			$y - 4 = \frac{4}{5}\left(x - (-2)\right)$ **OR** $4 = \frac{4}{5}(-2) + c$ & cari nilai c	K1
			$4x - 5y + 28 = 0$	N1
				6
9.	(*a*)		$\frac{(2x+5)^3}{4(6x-1)}$	N1
	(*b*)		$\frac{1}{2}\left(\frac{x^3}{3}\right) + x$	K1
			$\left(\frac{1}{2}\left(\frac{2^3}{3}\right) + 2\right) - 0$ @ $\frac{1}{2}\left(2 - \frac{1}{2}\right)(3)$ @ $(2^2 - 2) - \left(\left(\frac{1}{2}\right)^2 - \left(\frac{1}{2}\right)\right)$	K1
			$\left[\left(\frac{2^3}{6}\right) + 2 - 0\right] - \frac{9}{4}$	K1
			$\frac{13}{12}$ // $1\frac{1}{12}$ // 1.083	N1
				5

NO SOALAN			JAWAPAN	MARKAH
10	(*a*)		$d_1 = \frac{4m}{3} - \frac{m}{3}$ **&** $d_2 = \frac{7m}{3} - \frac{4m}{3}$ **&** $d_3 = \frac{10m}{3} - \frac{7m}{3}$	K1
			$d_1 = d_2 = d_3 = m$ **&** janjang aritmetik / *arithmetic progression*	N1
	(*b*)		$S_n = a + [a + d] + [a + 2d] + \cdots + [a + (n-1)d]$ @	
			$S_n = [a + (n-1)d] + [a + (n-2)d] + [a + (n-3)d] + \cdots + a$	K1
			$2S_n = 2a + (n-1)d + 2a + (n-1)d + 2a + (n-1)d + \cdots +$ $2a + (n-1)d$	K1
			$S_n = \frac{n}{2}[2a + (n-1)d]$	N1
	(*c*)		$S_{n-1} = \frac{n-1}{12}(4(n-1) + 5)$	K1
			Guna $T_n = S_n - S_{n-1}$ $T_n = \frac{n}{12}(4n + 5) - {}^{*}\left[\frac{n-1}{12}(4n + 1)\right]$	K1
			$\frac{8n+1}{12}$ @ setara	N1
				8
11	(*a*)	(i)	$(8-1)!$	K1
			5040	N1
		(ii)	$(6-1)! \times 3!$	K1
			4320	N1
	(*b*)		${}^{6}C_5 \times {}^{7}C_5$ @ ${}^{6}C_6 \times {}^{7}C_4$	K1
			$\left({}^{6}C_5 \times {}^{7}C_5\right) + \left({}^{6}C_6 \times {}^{7}C_4\right)$	K1
			161	N1
				7
12	(*a*)		$X = \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$	N1
	(*b*)		${}^{8}C_0 \left(\frac{1}{3}\right)^0 \left(\frac{2}{3}\right)^8$ @ ${}^{8}C_1 \left(\frac{1}{3}\right)^1 \left(\frac{2}{3}\right)^7$ @ ${}^{8}C_2 \left(\frac{1}{3}\right)^2 \left(\frac{2}{3}\right)^6$	K1
			$1 - {}^{8}C_0 \left(\frac{1}{3}\right)^0 \left(\frac{2}{3}\right)^8 - {}^{8}C_1 \left(\frac{1}{3}\right)^1 \left(\frac{2}{3}\right)^7 - {}^{8}C_2 \left(\frac{1}{3}\right)^2 \left(\frac{2}{3}\right)^6$	K1
			0.5318	N1
				4
BAHAGIAN B				
13.	(*a*)		Bukan fungsi kerana objek *B* tiada imej yang sepadan. @ Bukan fungsi kerana bukan semua objek mempunyai satu imej. *Not a function because object B has no corresponding image.* @ *Not a function because not all objects have an image*.	N1
	(*b*)		$4(4x + b) + b$	K1
			$4(4x + b) + b = 4x + b$	K1
			$x = -\frac{b}{3}$	N1

NO SOALAN			JAWAPAN	MARKAH
	(*c*)	(i)	$g^{-1}(x) = 3x$	N1
		(ii)	$g^2(x) = \frac{\left(\frac{x}{3}\right)}{3}$ @ $(g^{-1})^2(x) = 3(3x)$	K1
			$(g^2)^{-1}(x) = 9x$	K1
			$(g^2)^{-1}(x) = (g^{-1})^2(x) = 9x$	N1
				8
14	(*a*)	(i)	$2^{2m+2-2m} \times 5^{4m-(1+4m)}$	K1
			$\frac{4}{5}$	N1
		(ii)	$5^{2x} = 5^{3(6-2x)}$	K1
			$\frac{9}{4}$	N1
	(*b*)	(i)	$\frac{3+\sqrt{3}}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}}$	K1
			$3 - \sqrt{3}$	N1
		(ii)	$^{*}(3 - \sqrt{3}) - (2 + \sqrt{3})$	K1
			$1 - 2\sqrt{3}$	N1
				8
15	(*a*)		$\frac{1}{-\cos 45°}$ @ $-\sec 45°$	K1
			$-\sqrt{2}$	N1
	(*b*)	(i)	Guna $\sin 2x = 2\sin x \cos x$	K1
			Kiri = Kanan	N1
		(ii)	$2(1 - \cos 2x) = \frac{1}{4}$	K1
			$\cos 2x = \frac{7}{8}$	K1
			sudut rujukan= $28.96°$ // $28°57'$	N1
			$194.48°, 345.52°$// $194°29', 345°31'$	N1
				8

TAMAT