



**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

PEPERIKSAAN PERCUBAAN SPM 2025
MATEMATIK TAMBAHAN KERTAS 1
PERATURAN PERMARKAHAN

NO SOALAN			JAWAPAN	MARKAH																
1			$\frac{1}{2} \times (8)^2 \times 5.084$ 162.7	K1 N1																
				2																
2			Guna $m = \frac{7-1}{5-2}$ $c = -3$ @ $\ln y - 1 = 2(x - 2)$ @ $\ln y - 7 = 2(x - 5)$ $\ln y = 2x - 3$ $y = e^{2x-3}$	K1 K1 K1 N1																
				4																
3	(a)		$S_n = \frac{a(1-r^n)}{1-r}$ & $r \rightarrow \infty, r^n \rightarrow 0$ $S_\infty = \frac{a(1-0)}{1-r}$ & $S_\infty = \frac{a}{1-r}, r < 1$	K1 N1																
	(b)		$a = x$ (boleh tersirat) & $r = \frac{-\frac{2}{3}x}{x} = -\frac{2}{3}$ @ $r = \frac{\frac{4}{9}x}{-\frac{2}{3}x} = -\frac{2}{3}$ @ $r = \frac{-\frac{8}{27}x}{\frac{4}{9}x} = -\frac{2}{3}$ $\frac{x}{1 - (-\frac{2}{3})}$ $\frac{3}{5}x$	K1 K1 N1																
				5																
4	(a)		$\frac{dy}{dx} = 3(3 - 4x)^2(-4)$ -12	K1 N1																
	(b)		$*-12 \times m_2 = -1$ & $y - (-1) = \frac{*1}{12}(x - 1)$ OR $-1 = \frac{*1}{12}(1) + c$ & cari nilai c $y = \frac{1}{12}x - \frac{13}{12}$ @ setara	K1 N1																
				4																
5.	(a)		$(x - 5)(x + 1) > 0$ & <table><tr><td></td><td>$x < -1$</td><td>$-1 < x < 5$</td><td>$x > 5$</td></tr><tr><td>$(x - 5)$</td><td>-</td><td>-</td><td>+</td></tr><tr><td>$(x + 1)$</td><td>-</td><td>+</td><td>+</td></tr><tr><td>$(x - 5)(x + 1)$</td><td>+</td><td>-</td><td>+</td></tr></table> $x < -1, x > 5$		$x < -1$	$-1 < x < 5$	$x > 5$	$(x - 5)$	-	-	+	$(x + 1)$	-	+	+	$(x - 5)(x + 1)$	+	-	+	K1 N1
	$x < -1$	$-1 < x < 5$	$x > 5$																	
$(x - 5)$	-	-	+																	
$(x + 1)$	-	+	+																	
$(x - 5)(x + 1)$	+	-	+																	
	(b)		$\alpha + \beta = -\frac{h}{2}$ & $\alpha\beta = -\frac{2}{2}$ $\frac{1}{\alpha+1} + \frac{1}{\beta+1}$ & $\frac{1}{\alpha+1} \times \frac{1}{\beta+1}$ $\frac{1}{\alpha+1} + \frac{1}{\beta+1} = \frac{-\frac{h}{2}+2}{-1+(-\frac{h}{2})+1}$ @ $\frac{1}{\alpha+1} \times \frac{1}{\beta+1} = \frac{1}{-1+(-\frac{h}{2})+1}$ $\frac{1}{\alpha+1} + \frac{1}{\beta+1} = \frac{h-4}{h}$ & $\frac{1}{\alpha+1} \times \frac{1}{\beta+1} = -\frac{2}{h}$ $hx^2 - (h - 4)x - 2 = 0$ @ $hx^2 + (4 - h)x - 2 = 0$	P1 K1 K1 K1 N1																
				7																

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



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

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

TAMAT