



**MODUL PINTAS
TINGKATAN5**

3472/1

**MATEMATIK TAMBAHAN
Kertas 1**

2 jam

Dua jam

SKEMA JAWAPAN MATEMATIK TAMBAHAN KI 3472/1

NO SOALAN		JAWAPAN		MARKAH	
BAHAGIAN A					
1	(a)		(1,3)	N1	
	(b)		Guna $y - y_1 = m(x - x_1)$ $g: x \rightarrow 2x - 5$	K1 N1	
					3
2	(a)		$f(n) = (5.30 - 4.50)n - 120$ $f(n) = 0.8n - 120$	K1 N1	
	(b)		$0.8n - 120 = 0$ 150	K1 N1	
					4
3	(a)		Tukar 6^{k+2} kepada $6^k(6^2)$ atau 6^{k+1} kepada $6^k(6^1)$ $6^k(6^2 + 6 - 18)$ $6^k(24)$	K1 K1 N1	
	(b)		Alternatif 1: Gunakan mana-mana hukum log dengan betul $\frac{\log_5 t}{\log_5 25} @ \log_{25} s^2 - \log_{25} t - \log_{25} 5 @ \log_5 s @$ $\log_5 t @ \frac{\log_5 5}{\log_5 25} @ \frac{\log_5 s^2}{\log_5 25}$ Tukar asas $-\frac{\log_5 5}{\log_5 25} + \frac{2 \log_5 s}{\log_5 25} - \frac{\log_5 t}{\log_5 25}$ $-\frac{1}{2} + a - \frac{b}{2}$ atau $\frac{2a-1-b}{2}$ Alternatif 2: Tukar kepada bentuk log $a = \log_5 s, b = \log_5 t$ $\log_{25} \frac{s^2}{5t}$ $2 \log_{25} s - \log_{25} 5t$ $2 \left(\frac{\log_5 s}{\log_5 5^2} \right) - \frac{\log_5 5 + \log_5 t}{\log_5 5^2}$ $\frac{2a - 1 - b}{2}$	K1 K1 N1 K1 N1	
					6
4	(a)	(i)	$\frac{8!}{2(8)} @ \frac{(8-1)!}{2}$ 2520	K1 N1	
		(ii)	$\frac{{}^8P_5}{2(5)}$ 672	K1 N1	

NO SOALAN			JAWAPAN	MARKAH	
	(b)		${}^6C_3 \times {}^8C_3 \times {}^3C_2$ 3360	K1 N1	
					6
5	(a)		$(3, -4)$	N1	
	(b)		$x = 5$	N1	
	(c)		$m = 3$ $1 - n = 4$ $n = -3$	N1 K1 N1	
					5
6			$2SD = 3DG$ $\frac{SD}{DG} = \frac{3}{2}$ $D = \left(\frac{1(12) + 2(3)}{1 + 2}, \frac{1(7) + 2(1)}{1 + 2} \right)$ $(6, 3)$ $SD = \sqrt{(6 - 3)^2 + (3 - 1)^2}$ $\sqrt{13}$ atau 3.6055	K1 N1 K1 N1	
					4
7			$\mu = 5.5, \sigma = 2$ $P(1 < x < 3)$ $P\left(\frac{1 - 5.5}{2} < Z < \frac{3 - 5.5}{2}\right)$ $P(-2.25 < Z < -1.25)$ $P(Z < -1.25) - P(Z < -2.25)$ $P(Z > 1.25) - P(Z > 2.25)$ $0.1056 - 0.0122$ 0.0934	K1 K1 N1	
					3
8			$x^2y = -2x + p$ $p = 4$ $\frac{y}{x} = \frac{p}{x^3} - 2$ $q = -2$	P1 N1 P1 N1	
					4
9	(a)		Bezakan menggunakan petua hasil bahagi $\frac{dy}{dx} = \frac{3(4x-1)-4(3x+2)}{(4x-1)^2}$ atau $p = 3(4x - 1) - 4(3x + 2)$ -11	K1 N1	
	(b)	(i)	$-\frac{k}{5}$	N1	
		(ii)	$k - \left[\frac{kx^2}{2} \right]_1^3 = 3$ -1	K1 N1	
	(c)		$\left[\frac{6k^3}{3} \right]_0^3 = 54$	K1	

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			$\frac{6(k)^3}{3} - 0 = 54$ $k = 3$	K1 N1	
					8
10	(a)		Cari beza sepunya $d_1 = 12 - 6 = 6, d_2 = 18 - 12 = 6$ $d_1 = d_2$, maka janjang ini merupakan janjang aritmetik.	N1	
	(b)		$T_1:$ $6 = 6 + 0 = 6 + 0(6) = 6 + (1 - 1)(6)$ $T_2:$ $12 = 6 + 6 = 12 + 1(6) = 12 + (2 - 1)(6)$ $T_3:$ $18 = 6 + 6 + 6 = 18 + 2(6) = 6 + (3 - 1)(6)$ Senaraikan sebutan dalam bentuk $T_1 = a, T_2 = a + d, T_3 = a + d + d, \dots @ T_1 = a + d(0), T_2 = a + d(1), T_3 = a + d(2), \dots$ $T_1:$ $6 = 6 + 0 = 6 + 0(6)$ $T_2:$ $12 = 6 + 6 = 6 + 1(6)$ $T_3:$ $18 = 6 + 6 + 6 = 6 + 2(6)$ Gantikan sebutan pertama = a & beza sepunya = d $T_1:$ $a + (1 - 1)(d)$ $T_2:$ $a + (2 - 1)(d)$ $T_3:$ $a + (3 - 1)(d)$ $T_n = a + (n - 1)d$	K1 K1 N1	
	(c)		$T_n + T_{n+1} + T_{n+2} = 108$ $x + x + 6 + x + 12 = 108$ $x = 30$ $T_5 = 30, T_6 = 36, T_7 = 42$ $8.00 + 9.00 + 10.00 + 4.90$ RM31.90	K1 N1 K1 N1	
					8
11	(a)		Guna hukum segi tiga vektor $\overrightarrow{PR} = \overrightarrow{PA} + \overrightarrow{AR}$ $-\frac{2}{3}(2\underline{a}) + \lambda(2\underline{b})$ $-\frac{4}{3}\underline{a} + 2\lambda\underline{b}$	K1 N1	
	(b)	(i)	$\overrightarrow{PQ} = -\frac{8}{15}\underline{a} + \frac{6}{5}\underline{b}$ $\overrightarrow{PQ} = k\overrightarrow{PR}$ Bandingkan $\left(-\frac{8}{15}\underline{a} + \frac{6}{5}\underline{b}\right) = k\left(-\frac{4}{3}\underline{a} + 2\lambda\underline{b}\right)$ $\lambda = \frac{3}{2}$	K1 N1	
		(ii)	$PQ : QR = 2 : 3$	N1	
					5
12	(a)		$1.1\theta = \frac{21}{27}$ 0.7071	K1 N1	

NO SOALAN			JAWAPAN	MARKAH	
	(b)		$21 = (1.1 + x)0.7071$; x merujuk pada $UW @ SV$ $21 + \frac{21}{27} + 2(29.7 - 1.1)$ 78.98	K1 K1 N1	
	(c)		$21 = ST (0.7071)$ $ST = 29.7 \text{ m}$ $A = \frac{1}{2}(29.7)^2(0.7071) - \frac{1}{2}(1.1)^2(0.7071)$ 311.44	K1 K1 N1	
					8
BAHAGIAN B					
13	(a)	(i)	Guna petua rantai $\frac{dL}{dt} = 4 - 2t, \frac{dx}{dt} = 6$ $\frac{dL}{dx} = (4 - 2t) \left(\frac{1}{6} \right)$ $\frac{2 - t}{3}$	K1 K1 N1	
		(ii)	$-\frac{2}{3}$	N1	
	(b)		$\frac{\delta L}{L} \times 100\%, \delta x = 0.1$ Apabila $x = 9, 9 = 3 + 6t$ $t = 1, L = 3$ Gunakan $\frac{dL}{dx} \approx \frac{\delta L}{\delta x}$ $\delta L = \frac{1}{3}$ $\frac{1/3}{3} \times 100\%$ 11.11%	P1 K1 K1 N1	
					8
14	(a)		<u>Guna rumus sudut majmuk</u> $\frac{\cos(x - y) - \cos(x + y)}{\sin(x - y) + \sin(x + y)}$ $\frac{\cos x \cos y + \sin x \sin y - [\cos x \cos y - \sin x \sin y]}{\sin x \cos y - \cos x \sin y + \sin x \cos y + \cos x \sin y}$ Guna rumus $\cos(x - y) @ \cos(x + y) @ \sin(x - y) @ \sin(x + y)$ dengan betul $\frac{2 \sin x \sin y}{2 \sin x \cos y}$ $\tan y$	P1 P1 K1 N1	
	(b)	(i)	$b = 2$ $c = 3$	P1 P1	
		(ii)	Menggantikan nilai x dan y dari koordinat $\left(\frac{\pi}{8}, 7\right)$ ke dalam persamaan $y = a \tan bx + c$. $a = 4$	K1 N1	
					8

NO SOALAN			JAWAPAN	MARKAH	
15	(a)		$4\sqrt{3} - 2(3) + 4 - 2\sqrt{3}$ $2\sqrt{3} - 2$	K1 N1	
	(b)	(i)	30	P1	
		(ii)	$30\left(\frac{4}{5}\right)^t = 15.36$ $t \log_{10}\left(\frac{4}{5}\right) = \log_{10}\left(\frac{15.36}{30}\right)$ $t = \frac{\log \frac{15.36}{30}}{\log \frac{4}{5}}$ $t = 3$	K1 N1	
		(iii)	$30\left(\frac{4}{5}\right)^t < 5$ $t \log_{10} 0.8 < \log_{10} \frac{1}{6}$ $t > 8.0296$ $t = 9$	K1 K1 N1	
					8