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 $y - y_1 = m(x - x_1)$ $g: x \to 2x - 5$	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 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*)		${}^{6}C_3 \times {}^{8}C_3 \times {}^{3}C_2$ 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			$\mu = 5.5, \sigma = 2$ $P(1 < x < 3)$ $P(\frac{1-5.5}{2} < Z < \frac{3-5.5}{2})$ $P(-2.25 < Z < -1.25)$ $P(Z < -1.25) - P(Z < -2.25)$ $P(Z > 1.25) - P(Z > 2.25)$ $0.1056 - 0.0122$ 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 $T_1 = a,\ T_2 = a + d,\ T_3 = a + d + d, \ldots$ @ $T_1 = a + d(0),\ T_2 = a + d(1),\ T_3 = a + d(2), \ldots$ 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	

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	(*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*)		$21 = ST\ (0.7071)$ $ST = 29.7$ 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 $\frac{dL}{dt} = 4 - 2t, \quad \frac{dx}{dt} = 6$ $\frac{dL}{dx} = (4 - 2t)\left(\frac{1}{6}\right)$ $\frac{2 - t}{3}$	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*)		Guna rumus sudut majmuk $\frac{kos\ (x - y)\ -\ kos\ (x + y)}{\sin(x - y)\ + \sin(x + y)}$ $\frac{kos\ x\ kos\ y + \sin x \sin y - [kos\ x\ kos\ y\ - \sin x \sin y]}{\sin x\ kos\ y - kos\ x \sin y + \sin x\ kos\ y + kos\ x \sin y}$ Guna rumus $kos\ (x - y)$ @ $kos\ (x + y)$ @ $\sin(x - y)$ @ $sin\ (x + y)$ dengan betul $\frac{2 \sin x \sin y}{2 \sin x\ kos\ y}$ $\tan y$	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