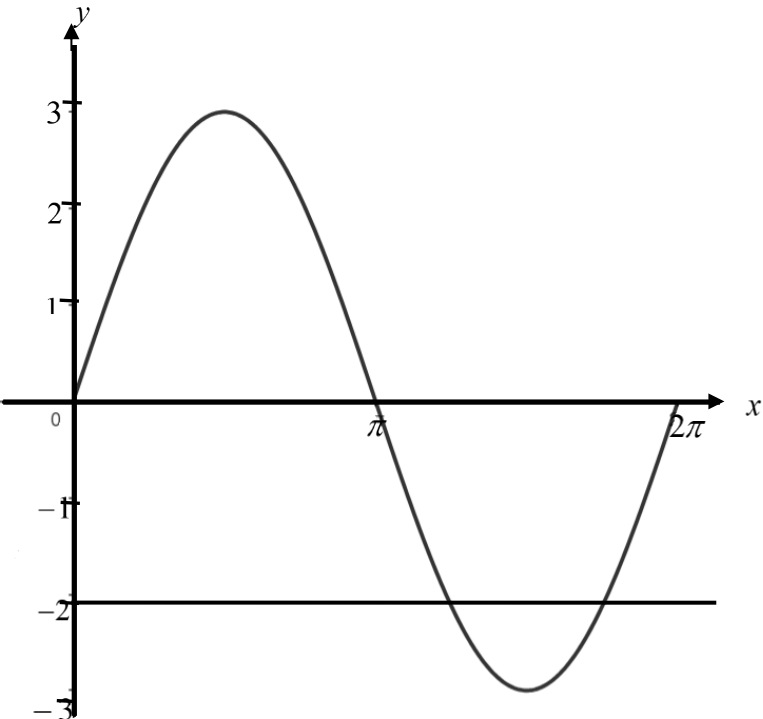


MODUL PINTAS PPC 2024 MATEMATIK TAMBAHAN
PERATURAN PEMARKAHAN TINGKATAN 5 KERTAS 2

SOALAN			PEMARKAHAN	SUB MARKAH	MARKAH
1	(a)	(i)	Guna $m_1 \times m_2 = -1$ $-2 \times m_{CD} = -1$	K1	
			Guna $y - y_1 = m(x - x_1)$ ATAU Guna $y = mx + c$ DAN selesaikan untuk c $y - (-2) = \frac{1}{2}(x - (-8)) \quad \text{ATAU}$ $-2 = \frac{1}{2}(-8) + c \quad \text{DAN} \quad c = 2$	K1	
			$y = \frac{1}{2}x + 2$	N1	
		(ii)	Selesaikan persamaan linear serentak	K1	
			$(-2, 1)$	N1	
	(b)		Guna rumus pembahagi tembereng $(-2, 1) = \left(\frac{-8(2) + 3x}{3 + 2}, \frac{-2(2) + 3y}{3 + 2} \right)$	K1	
			$(2, 3)$	N1	
					7
2			$4x + 2y = 208 \quad @ \quad xy = 1280$	P1	
			$y = 104 - 2x \quad @ \quad \text{setara}$	P1	
			$x(104 - 2x) = 1280 \quad @ \quad \text{setara}$	K1	
			$(x - 32)(x - 20) = 0$	K1	
			$x = 32, y = 40 \quad \text{dan} \quad x = 20, y = 64$	N1	

			$20(32) + 25(40) \quad @ \quad 20(20) + 25(64)$	K1	
			Kilang Jaya = 20 , Kilang Makmur = 64	N1	
					7
3	(a)		$\frac{\sin^2 x - (1 - 2\sin^2 x) + 1}{\sin x}$	K1	
			$3\sin x$ LHS=RHS	N1	
	(b)				
			Bentuk graf sinus – 1 kitaran lengkap graf positif sahaja	P1	
			Amplitud = 3 (Mak = 3, Min = -3) Untuk $0 \leq x \leq 2\pi$ (tidak terima 360°)	P1	
			Lakar garis lurus $y = -2$	K1	
			Bilangan penyelesaian = 2 (N0 sekiranya lakar garis putus-putus)	N1	
					6

4	(a)		$3\beta + \beta = -\frac{(-12)}{3}$ DAN $3\beta^2 = \frac{m-3}{3}$	P1	
			$\beta = 1$	N1	
			$(3)(1^*)^2 = \frac{m-3}{3}$	K1	
			12	N1	
	(b)		$(4q)^2 - 4p(16p) = 0$	K1	
			1:2	N1	
					6
5	(a)	(i)	$p(4-x)^2 + q$	K1	
			$-8p = -16$ DAN $16p + q = 26$	K1	
			$p = 2$, $q = -6$	N1	
		(ii)	$8x^4 - 48x^2 + 66$	K1	
			26	N1	
	(b)	(i)	$\frac{2-x}{2}$	N1	
		(ii)	$(2-2x)^2 - 4(2-2x) + 5$ @ $(2-2y)^2 - 4(2-2y) + 5$	K1	
			$4x^2 + 1$	N1	
					8
6	(a)		$\frac{dy}{dx} = x[3(x-2)^2(1)] + (x-2)^3(1)$	K1	
			$2(2x-1)(x-2)^2$ @ setara	N1	

	(b)		$\frac{dy}{dx} = 0$ $2(2x-1)(x-2)^2 = 0$	K1																					
			$x = \frac{1}{2}$ dan $x = 2$	N1																					
			$P\left(\frac{1}{2}, -\frac{27}{16}\right)$ dan $Q(2,0)$	N1																					
	(c)		<table><tr><td>x</td><td>1.5</td><td>2</td><td>2.5</td></tr><tr><td>$\frac{dy}{dx}$</td><td>1</td><td>0</td><td>2</td></tr><tr><td>Tanda bagi $\frac{dy}{dx}$</td><td>+</td><td>0</td><td>+</td></tr><tr><td>Lakaran tangen</td><td></td><td></td><td></td></tr><tr><td>Lakaran graf</td><td colspan="3"></td></tr></table>	x	1.5	2	2.5	$\frac{dy}{dx}$	1	0	2	Tanda bagi $\frac{dy}{dx}$	+	0	+	Lakaran tangen				Lakaran graf				K1	
x	1.5	2	2.5																						
$\frac{dy}{dx}$	1	0	2																						
Tanda bagi $\frac{dy}{dx}$	+	0	+																						
Lakaran tangen																									
Lakaran graf																									
			Sifat titik pegun Q ialah titik lengkok balas	N1																					
					7																				
7	(a)		$a, a + d, a + 2d, a + 3d, \dots, a + nd$	K1																					
			$T_1 = a + 0d$ $T_2 = a + 1d$ $T_3 = a + 2d$	K1																					
			$T_n = a + (n-1)d$	N1																					
	(b)	(i)	$T_{25} = a + (25-1)d = 24$	K1																					
			$24d + 24d = 24$	K1																					
			$d = 0.5$	N1																					

		(ii)	$\frac{25}{2}[2(12) + (25 - 1)0.5]$							K1	
			$*S_n \times 8 \times 4 \times 10^{-5}$							K1	
			Bilangan maksimum 33							N1	
											9
8	(a)		$\sqrt{x}$	1	1.41	1.73	2	2.24	2.45	N1, N1	
			$\frac{y}{\sqrt{x}}$	0.48	0.76	0.93	1.15	1.29	1.49		
	(b)		Rujuk Lampiran								
			Paksi-paksi betul dan skala seragam DAN Sekurang-kurangnya 1 titik diplot betul							K1	
			6 titik diplot betul							K1	
			Garis lurus penyuaian terbaik							N1	
	(c)		$\frac{y}{\sqrt{x}} = q\sqrt{x} + p$							P1	
		(i)	$q = \frac{1.29 - 0.48}{2.24 - 1}$							K1	
			$q = *0.6829$							N1	
			$p = -0.20 \pm 0.02$							N1	
		(ii)	Terima nilai $\sqrt{x}$ $1.05 \leq \sqrt{x} \leq 1.15$							N1	
											10
9	(a)	(i)	$\overrightarrow{BD} = \overrightarrow{BA} + \overrightarrow{AD} \quad @ \quad \overrightarrow{BF} = \overrightarrow{BA} + \overrightarrow{AE} + \overrightarrow{EF}$							K1	
			$-20\underline{v} + 32\underline{u}$							N1	
		(ii)	$8\underline{u} - 5\underline{v}$							N1	

	(b)	(i)	$\overrightarrow{BF} = \lambda \overrightarrow{BD}$ @ setara DAN Bandingkan pekali u dan v	KI	
			$\lambda_1 = \lambda_2 = 4$ @ $\lambda_1 = \lambda_2 = \frac{1}{4}$ atau $\overrightarrow{BD} = 4\overrightarrow{BF}$ @ setara	N1	
		(ii)	$\sqrt{[-20(2)]^2 + [32(3)]^2}$	K1	
			104	N1	
	(c)		$\overrightarrow{DG} = \overrightarrow{DA} + \overrightarrow{AG}$ dan $\overrightarrow{DG} = -48\hat{u} + 50\hat{v}$ ATAU setara	K1	
			Bandingkan pekali $u = v$ Selesaikan persamaan	K1	
			$m = 2$	N1	
					10
10	(a)		$x^2 + 2x - 3 = 0$ $(x-1)(x+3) = 0$ $x = 1$	K1	
			$A = (1, 4)$	N1	
	(b)		$A_1 = \left[\frac{(-x)^3}{3} + 5 \right]_0^1$ @ $A_2 = \frac{1}{2}(2+4)(1)$	K1	
			$\left[\left(\frac{-(1)^3}{3} + 5(1) \right) - \left(\frac{-(0)^3}{3} + 5(0) \right) \right]$	K1	
			$A_1 - A_2$ $4\frac{2}{3} - 3$	K1	
			$\frac{5}{3} \text{ unit}^2$	N1	
	(c)		$V_1 = \pi \left[5y - \frac{y^2}{2} \right]_4^5$ @ $V_{\text{cone}} = \frac{1}{3} \pi (1)^2 (2)$	K1	
			$\pi \left[\left(5(5) - \frac{(5)^2}{2} \right) - \left(5(4) - \frac{(4)^2}{2} \right) \right]$	K1	

			$V_{cone} = \frac{1}{3}\pi(1)^2(2)$ DAN $\left(\frac{1}{2} + \frac{2}{3}\right)\pi$	K1	
			$\frac{7}{6}\pi \text{ unit}^3$	N1	
					10

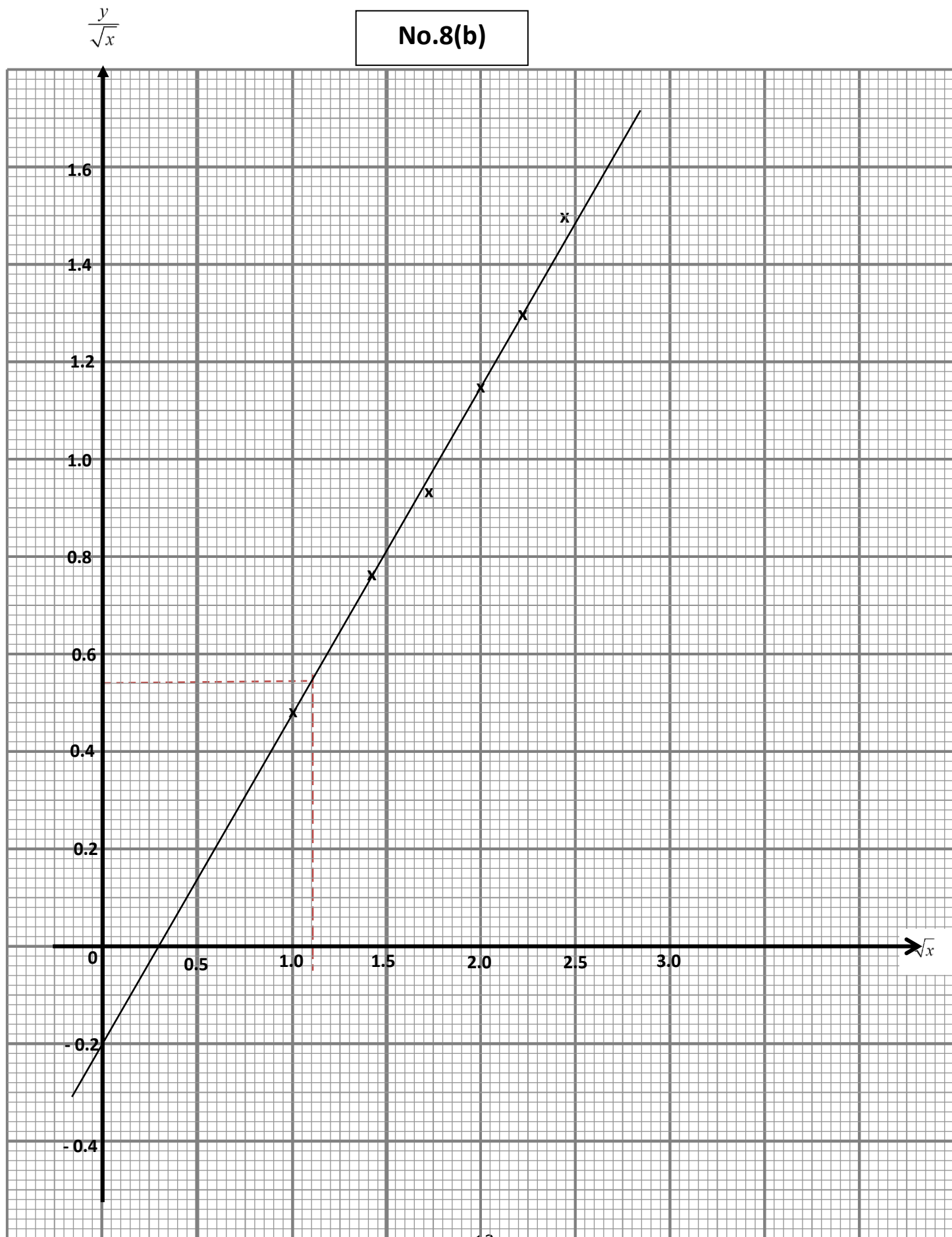


11	(a)	(i)	$P(Z > \frac{2.6 - 2.2}{0.3})$	P1	
			0.0913	N1	
		(ii)	-0.842	P1	
			$\frac{m - 2.2}{0.3} = -0.842$	K1	
			1.947	N1	
	(b)	(i)	${}^6C_5(0.4)^5(0.6)^{6-5}$	K1	
			0.03686	N1	
		(ii)	${}^nC_0(0.4)^0(0.6)^{n-0} < 0.01$	K1	
			$n > \frac{\log_{10} 0.01}{\log_{10} 0.6}$	K1	
			$n = 10$	N1	
					10
12	(a)		$p = 30$ dan $q = 20$	N1	
	(b)		$9x + 7y \leq 630$	K1	
			Lukis dengan betul garis lurus $9x + 7y = 630$	K1	
			Rantau R dilabel dengan betul	N1	
	(c)	(i)	Lukis dengan betul garis lurus $y = 3x$	P1	
			10	N1	
		(ii)	$k = 10x + 20y$	N1	

			Lukis $k = 10x + 20y$	K1	
			Ganti (31,50) ke dalam $k = 10x + 20y$ $10(31) + 20(50)$	K1	
			RM 1310	N1	
					10
13	(a)	(i)	$\frac{15.60}{12.00} \times 100$	K1	
			130	N1	
		(ii)	RM13.20	N1	
	(b)	(i)	$106.7 = \frac{(106 \times 2) + (105 \times h) + (110 \times 3)}{2 + h + 3}$	K1, K1	
			5	N1	
		(ii)	$\frac{58.20}{P_{2018}} \times 100 = 106.7$	K1	
			RM54.55	N1	
	(c)		$\frac{125}{105} \times 100 @ \text{ setara}$	K1	
			119.05	N1	
					10

14	(a)	(i)	$\frac{1}{2}(10)(6)\sin \angle DCB = 28$	K1	
			$\angle DCB = 111.04^\circ$	N1	
		(ii)	$BD^2 = 10^2 + 6^2 - 2(10)(6)\cos *111.04^\circ$	K1	
			$BD = 13.38 \text{ cm}$	N1	
		(iii)	$\frac{\sin \angle A}{*13.38} = \frac{\sin 45^\circ}{9.6}$	K1	
			$\angle A = 80.24^\circ$ $\angle ABD = 180^\circ - 80.24^\circ - 45^\circ$ $= 54.76^\circ$	N1	
	(b)		$\frac{1}{2}(9.6)(ED) = 52.45$ $ED = 10.93$	K1	
			$EC^2 = (*10.93)^2 + (6)^2 - 2(*10.93)(6)\cos 15^\circ$	K1	
			$EC = 5.364$		
			$\frac{\sin \angle CED}{6} = \frac{\sin 15}{*5.364}$	K1	
			$\angle CED = 16.83^\circ$	N1	
					10
15	(a)		$v_N = 9t^2 - 1$ dan gantikan $t = 0$	K1	
			-1 ms^{-1}	N1	
	(b)		Dilihat $\frac{1}{3}$	P1	

			$\int_0^{\frac{1}{3}} 9t^2 - 1 \, dt$ atau $\int_{\frac{1}{3}}^2 9t^2 - 1 \, dt$ DAN gantikan pada titik $0, \frac{1}{3}$ atau $\frac{1}{3}, 2$	K1	
			Jumlah jarak = $A_1 + A_2$	K1	
			$22\frac{4}{9}$ @ setara	N1	
	(c)		$s_M = 11 + s_N$ $3t^3 + 10t = 11 + 3t^3 - t$	K1	
			Gantikan $t=1$ pada s_M dan s_N	K1	
			Jarak M dari P dan jarak N dari P	K1	
			2 m	N1	
					10



Soalan 12
Question 12

