













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

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

		20(32)+25(40) @ 20(20)+25(64)	K1	
		Kilang Jaya = 20 , Kilang Makmur = 64	N1	
				<b>7</b>
<b>3</b>	(a)	$\frac{\sin^2 x - (1 - 2\sin^2 x) + 1}{\sin x}$	K1	
		3sin 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 $360^\circ$ )	P1	
		Lakar garis lurus $y = -2$	K1	
		Bilangan penyelesaian = 2 (NO sekiranya lakar garis putus-putus)	N1	
				<b>6</b>

<b>4</b>	(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	
					<b>6</b>
<b>5</b>	(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	
					<b>8</b>
<b>6</b>	(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 border="1"> <tbody> <tr> <td><math>x</math></td> <td>1.5</td> <td>2</td> <td>2.5</td> </tr> <tr> <td><math>\frac{dy}{dx}</math></td> <td>1</td> <td>0</td> <td>2</td> </tr> <tr> <td>Tanda bagi <math>\frac{dy}{dx}</math></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" style="text-align: center;"></td> </tr> </tbody> </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																					
				<b>7</b>																				
<b>7</b>	(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		
										<b>9</b>	
<b>8</b>	(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		
										<b>10</b>	
<b>9</b>	(a)	(i)	$\overrightarrow{BD} = \overrightarrow{BA} + \overrightarrow{AD} \quad @ \quad \overrightarrow{BF} = \overrightarrow{BA} + \overrightarrow{AE} + \overrightarrow{EF}$						K1		
			$-20\hat{v} + 32\hat{u}$						N1		
		(ii)	$8\hat{u} - 5\hat{v}$						N1		

	(b)	(i)	$\overline{BF} = \lambda \overline{BD}$ @ setara <b>DAN</b> Bandingkan pekali $u$ dan $v$	KI	
			$\lambda_1 = \lambda_2 = 4$ @ $\lambda_1 = \lambda_2 = \frac{1}{4}$ atau $\overline{BD} = 4\overline{BF}$ @ setara	N1	
		(ii)	$\sqrt{[-20(2)]^2 + [32(3)]^2}$	K1	
			104	N1	
	(c)		$\overline{DG} = \overline{DA} + \overline{AG}$ dan $\overline{DG} = -48u + 50v$ ATAU setara	K1	
			Bandingkan pekali $u = v$ Selesaikan persamaan	K1	
			$m = 2$	N1	
					<b>10</b>
<b>10</b>	(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	
							<b>10</b>

<b>11</b>	(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	
					<b>10</b>
<b>12</b>	(a)		p = 30 dan q = 20	N1	
	(b)		9x + 7y ≤ 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	

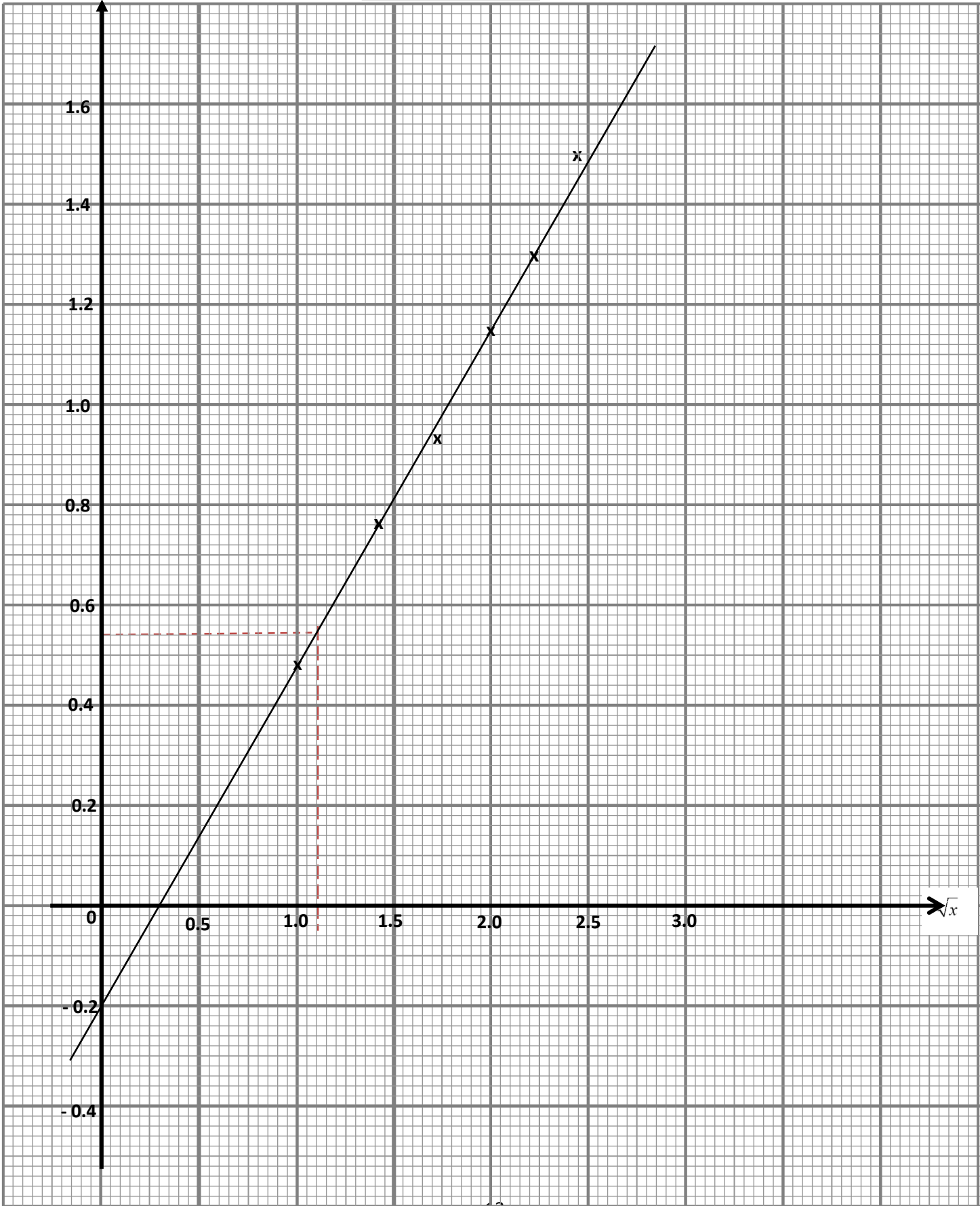


			Lukis $k = 10x + 20y$	K1	
			Ganti (31,50) ke dalam $k = 10x + 20y$ $10(31) + 20(50)$	K1	
			RM 1310	N1	
					<b>10</b>
<b>13</b>	(a)	(i)	$\frac{15.60}{12.00} \times 100$	K1	
			130	N1	
		(ii)	RM13.20	N1	
	(b)	(i)	$106.7 = \frac{(106 \times 2) + (105 \times h) + (110 \times 3)}{2 + h + 3}$	K1, K1	
	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

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			
				<b>10</b>	
15	(a)		$v_N = 9t^2 - 1$ dan gantikan $t = 0$	K1	
			$-1 \text{ ms}^{-1}$	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	
				<b>10</b>

No.8(b)



Soalan 12  
Question 12

