

**MODUL PINTAS PPC 2024 MATEMATIK TAMBAHAN
PERATURAN PEMARKAHAN TINGKATAN 5 KERTAS 1**

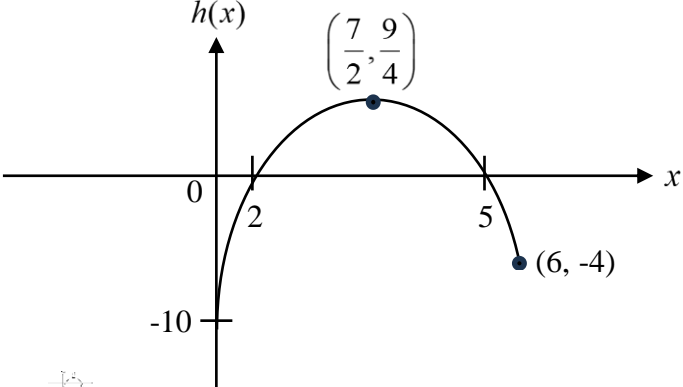
SOALAN		PEMARKAHAN	SUB MARKAH	MARKAH
1		$60 = np$ atau $3\sqrt{5} = \sqrt{60q}$	K1	
		Selesaikan untuk cari nilai $p @ q$ <hr/> $p = \frac{1}{4} @ q = \frac{3}{4}$	K1	
		$n = 240$	N1	
				3
2		$(-3, 6)$ dan $(1, 2)$	P1	
		Cari kecerunan bagi $(-3, 6)$ dan $(1, 2)$ DAN Gantikan $(-3, 6) @ (1, 2)$ ke dalam $Y = mX + c$ DAN Selesaikan untuk c	K1	
		$\sqrt{y} = -x + 3$	K1	
		$y = (-x + 3)^2$ atau setara	N1	
				4
3	(a)	$\begin{pmatrix} 2 \\ 4 \end{pmatrix}$ OR $2\tilde{i} + 4\tilde{j}$	N1	
	(b)	(i) $\begin{pmatrix} 2 \\ 4 \end{pmatrix} + 3\begin{pmatrix} 3 \\ k \end{pmatrix} = \begin{pmatrix} 11 \\ -2 \end{pmatrix} @$ $(2\tilde{i} + 4\tilde{j}) + 3(3\tilde{i} + k\tilde{j}) = 11\tilde{i} - 2\tilde{j}$	K1	
		-2	N1	
		(ii) $\frac{1}{\sqrt{3^2 + (-2)^2}} \begin{pmatrix} 3 \\ -2 \end{pmatrix} @ \frac{3i - 2j}{\sqrt{3^2 + (-2)^2}}$	K1	
		$\frac{3}{\sqrt{13}}\tilde{i} - \frac{2}{\sqrt{13}}\tilde{j} // \begin{pmatrix} 3 \\ \sqrt{13} \\ -2 \\ \sqrt{13} \end{pmatrix}$	N1	
				5

4	(a)	$2x-3=3$ and $2x-3=-3$	K1	
		$x=3$ and $x=0$	N1	
	(b)	$-4 \leq 2x-3 \leq 4$ atau setara	K1	
		$-\frac{1}{2} \leq x \leq \frac{7}{2}$	N1	
				4
5	(a)	$8 \int 5f(x) dx$	K1	
		$8g(x)+c$	N1	
	(b)	$V = \left(\frac{h}{2}\right)^2 (h)\pi$	K1	
		$\frac{dV}{dh} = \frac{3}{4}(h)^2 \pi$	K1	
		Guna rumus $\frac{dV}{dt} = \frac{dV}{dh} \times \frac{dh}{dt}$ dan gantikan nilai $3 = \frac{3}{4}(12)^2 \pi \times \frac{dh}{dt}$	K1	
		$\frac{dh}{dt} = \frac{1}{36\pi}$	N1	
				6
6	(a)	$ar^2 + ar^3 = 640$ @ $ar^2 - ar = 96$	K1	
		$\frac{ar(r+r^2)}{ar(r-1)} = \frac{640}{96}$ DAN Selesaikan *persamaan kuadrat	K1	
		$r = 4$	N1	
		$a = 8$	N1	
	(b)	(i)	K1	
		$\left(\frac{1}{9}\right)\left(\frac{1}{3}\right)^{n-1} \geq \frac{1}{10000}$	K1	
		$n-1 \leq \frac{\log_{10} \frac{9}{10000}}{\log_{10} \frac{1}{3}}$	K1	
		7	N1	

	(ii)	$\left(\frac{1}{9}\right)$ $\left(1-\frac{1}{3}\right)$	K1	
		$\frac{1}{6}$	N1	
				9
7	(a)	$\log_a x = p$, $x = a^p$ atau $\log_a y = q$, $y = a^q$	K1	
		$\frac{x}{y} = a^{p-q}$	K1	
		$\log_a \frac{x}{y} = \log_a x - \log_a y$	N1	
	(b)	$\log_b \left(\frac{64}{216}\right) = 3$	K1	
		$b^3 = \frac{64}{216}$	K1	
		$\frac{2}{3}$	N1	
				6
8	(a)	-8	N1	
	(b)	$y = \left[\frac{3x^3}{3} - \frac{8x^2}{2} + 3x + c \right]$	K1	
		Gantikan (1,3) ke dalam fungsi lengkung dan selesaikan c	K1	
		$y = x^3 - 4x^2 + 3x + 3$	N1	
				4
9	(a)	5(1.047)	K1	
		$(5(1.047))^* \times 6$	K1	
		31.41	N1	
	(b)	$\frac{1}{2}(5)^2(1.047)$	K1	
		$\frac{1}{2}(5)^2 \sin 60^\circ$	K1	

			$4(10.825) + 6 \left(\left(\frac{1}{2} (5)^2 (1.047) \right)^* - \left(\frac{1}{2} (5)^2 \sin 60^\circ \right)^* \right)$	K1	
			56.88	N1	
					7
10	(a)		${}^n C_1 \left(\frac{1}{8} \right)^1 \left(\frac{7}{8} \right)^{n-1} = 15 \left({}^n C_0 \left(\frac{1}{8} \right)^0 \left(\frac{7}{8} \right)^n \right)$	K1	
			$n=105$	N1	
	(b)		$\frac{735}{64} @ setara$	N1	
					3
11	(a)	(i)	24	N1	
		(ii)	$\frac{4!}{2!} \times 4!$	K1	
			288	N1	
	(b)	(i)	${}^{10} C_4 \times {}^{15} C_4$	K1	
			286 650	N1	
		(ii)	$5 \times {}^4 P_4 \times {}^4 P_4$ OR ${}^5 P_4 \times {}^4 P_4$	K1	
			2880	N1	
					7
12	(a)		$9x^{3-8} y^{4-(-3)}$	K1	
			$\frac{9y^7}{x^5}$	N1	
	(b)		$30 + 2\sqrt{3} = A \times (27 - 13\sqrt{3})$	P1	
			$\frac{30 + 2\sqrt{3}}{27 - 13\sqrt{3}} \times \left(\frac{27 + 13\sqrt{3}}{27 + 13\sqrt{3}} \right)$	K1	
			$\frac{810 + 390\sqrt{3} + 54\sqrt{3} + 26(3)}{27^2 - (13\sqrt{3})^2}$	K1	
			$4 + 2\sqrt{3}$	N1	

					6
13	(a)		$\frac{1}{2}(x_3 - x_2)(y_3 - y_2) + \frac{1}{2}(x_2 - x_1)[(y_3 - y_1) + (y_3 - y_2)]$ $-\frac{1}{2}(x_3 - x_1)(y_3 - y_1)$	K1	
			$\frac{1}{2}[(x_1y_2 + x_2y_3 + x_3y_1) - (x_1y_3 + x_2y_1 + x_3y_2)]$	N1	
	(b)	(i)	$\frac{1}{2}[(3(-2) + 1(0) + x(4)) - (1(4) + (-2)(x) + 0(3))] = 10$	K1	
			$6x - 10 = -20$	K1	
			$R\left(\frac{-5}{3}, 0\right)$	N1	
		(ii)	$MR = 2MP$	P1	
			$\sqrt{\left(x - \left(-\frac{5}{3}\right)\right)^2 + (y - 0)^2} = 2\sqrt{(x - 3)^2 + (y - 4)^2}$	K1	
			$27x^2 + 27y^2 - 246x - 288y + 875 = 0$ @ setara	N1	
					8
14	(a)		$\left(\frac{k}{\sqrt{1+k^2}}\right)^2 - \left(\frac{1}{\sqrt{1+k^2}}\right)^2$ @ setara	K1	
			$\frac{k^2 - 1}{k^2 + 1}$	N1	
	(b)		$2(-t)\left(\frac{-\sqrt{1-t^2}}{1}\right)$	K1	
			$2t\sqrt{1-t^2}$	N1	
	(c)		$\tan 2(67.5^\circ) = \frac{2 \tan 67.5^\circ}{1 - \tan^2 67.5}$ OR	K1	
			$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-1)}}{2(1)}$	K1	
			2.414, -0.414	N1	
			2.414	N1	
					8

15	(a)	(i) $- \left[x^2 - 7x + \left(-\frac{7}{2} \right)^2 - \left(-\frac{7}{2} \right)^2 + 10 \right]$ @ setara	K1																	
		$\frac{9}{4}$	N1																	
		(ii)  <p>Bentuk maksimum Label pintasan-x dan pintasan-y Label titik maksimum dan domain</p> $-10 \leq h(x) \leq \frac{9}{4}$	N1 N1 N1 N1																	
	(b)	<table border="1" data-bbox="359 1115 1002 1288"> <thead> <tr> <th></th> <th>$x \leq 2$</th> <th>$2 \leq x \leq 5$</th> <th>$x \geq 5$</th> </tr> </thead> <tbody> <tr> <td>$(x-2)$</td> <td>-</td> <td>+</td> <td>+</td> </tr> <tr> <td>$(x-5)$</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>$(x-2)(x-5)$</td> <td>+</td> <td>-</td> <td>+</td> </tr> </tbody> </table>		$x \leq 2$	$2 \leq x \leq 5$	$x \geq 5$	$(x-2)$	-	+	+	$(x-5)$	-	-	+	$(x-2)(x-5)$	+	-	+	K1	
	$x \leq 2$	$2 \leq x \leq 5$	$x \geq 5$																	
$(x-2)$	-	+	+																	
$(x-5)$	-	-	+																	
$(x-2)(x-5)$	+	-	+																	
		$2 \leq x \leq 5$	N1																	
				8																