

PRAKTIS BESTARI JUJ 2024
MATEMATIK TAMBAHAN

PERATURAN PEMARKAHAN

KERTAS 1 SET 2

No			PEMARKAHAN	MARKAH	MARKAH PENUH
1	(a)		Nampak garis mengufuk memintas lengkung pada satu titik.	P1	
			Hubungan satu kepada satu.	P1	
	(b)		$f^{-1}(x) = \frac{1-2x}{x}, x \neq 0$	N1	
					3
2	(a)		$\frac{50}{3} = \frac{n(10)+m(50)}{m+n} \quad @ \quad 15 = \frac{n(20)+(m)(-10)}{m+n}$	K1	
			1:5	N1	
	(b)		$\left(-\frac{3}{4}\right)m_2 = -1$	K1	
			$y-15 = \frac{4}{3}\left(x-\frac{50}{3}\right)$ atau setara	K1	
			$y = \frac{4}{3}x - \frac{65}{9}$	N1	
					5
3	(a)		$-x^2 + 10x - 13 \geq 8$ OR $-x^2 + 10x - 13 = 8$	K1	
			$(x-7)(x-3) \leq 0$ atau setara OR $(x-7)(x-3) = 0$	K1	
			$3 \leq x \leq 7$	N1	
	(b)		$(-15)^2 - 4(1)(2h-k) = 0$ OR $\alpha + \alpha = -(-15)$ dan $\alpha(\alpha) = 2h-k$	K1	
			$h = \frac{225+4k}{8}$ atau setara	N1	

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4	(a)		$\cos \angle POQ = \frac{4}{6} \text{ atau } \sin \angle POQ = \frac{\sqrt{6^2 - 4^2}}{6} \text{ atau } \tan \angle POQ = \frac{\sqrt{6^2 - 4^2}}{4}$	P1	
			0.8412	N1	
	(b)		$6(0.8412)$	K1	
			$6(0.8412) + \sqrt{6^2 - 4^2} + 2$	K1	
			11.52	N1	
					5
5	(a)		Menggunakan hukum hasil darab atau hukum hasil bahagi	P1	
			Menggunakan hukum kuasa	P1	
			$\frac{5}{2}$	N1	
	(b)		$e^2 = 8 - x$	K1	
			0.6109	N1	
					5
6			$m^2 + n^2 = p^2$ OR $\sin A = \frac{m}{p}$ DAN $\cos A = \frac{n}{p}$	P1	
			$\left(\frac{m}{p}\right)^2 + \left(\frac{n}{p}\right)^2 = 1$	K1	
			$\sin^2 A + \cos^2 A = 1$	N1	
					3

7			$(y-2) = mx^2 + c$	P1	
			$m = \frac{6-2}{1-3} \quad @ \quad m = \frac{2-6}{3-1} \quad \text{DAN}$ $6 = (-2)(1) + c \quad @ \quad 2 = (-2)(3) + c \quad \text{DAN}$ $c = 6 + 2 \quad @ \quad c = 2 + 6 \quad @ \quad c = 8$ OR $(y-x) - 6 = (-2)(x^2 - 1) @ (y-x) - 2 = (-2)(x^2 - 3)$	K1	
			$y = -2x^2 + x + 8$	N1	
					3
8	(a)		$(5 \sin A - 2)(3 \sin A + 1) = 0$	P1	
			Sudut rujukan : 23.58° atau 19.47°	P1	
			$23.58^\circ, 156.42^\circ, 199.47^\circ, 340.53^\circ$	N1	
	(b)		Sudut rujukan : 42.90° OR $2 \cos^2 A - 1 = 0.7325$ atau setara	P1	
			$2x = 42.90^\circ, 317.10^\circ, 402.90^\circ, 677.10^\circ$ OR sudut rujukan : 21.45°	P1	
			$21.45^\circ, 158.55^\circ, 201.45^\circ, 338.55^\circ$	N1	
					6
9	(a)	(i)	$UM = UN + NM$	P1	
			$39p - \frac{15}{2}q$	N1	
			$TM = 117p - \frac{45}{2}q$	N1	

		(ii)	$53p + 10q$	N1	
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	(b)		Bandingkan pekali vektor $\begin{matrix} p \\ \text{---} \end{matrix}$ dan vektor $\begin{matrix} q \\ \text{---} \end{matrix}$ untuk mendapatkan nilai λ $LN = \lambda UN$ atau setara	K1	
			$\lambda_p = \frac{53}{3}$ DAN $\lambda_q = \frac{2}{3}$ atau setara DAN Tidak segaris. $\lambda_p \neq \lambda_q$	N1	
	(c)		$TM = \sqrt{(117 \times 1)^2 + \left(-\frac{45}{2} \times 2\right)^2}$	K1	
			$9\sqrt{194}$	N1	
					8
10		(i)	$P(X=1) = 7P(X=0)$	P1	
			${}^nC_1(0.2)^1(0.8)^{n-1} = 7 \times {}^nC_0(0.2)^0(0.8)^{n-0}$	K1	
			$n = 28$	N1	
		(ii)	$28\left(\frac{1}{5}\right)$	K1	
			5	N1	
					5
11	(a)		$10!$ atau $2!$ atau $9!$ atau ${}^{10}P_{10}$ atau 2P_2 atau 9P_9	P1	
			${}^{10}P_{10} - ({}^2P_2 \times {}^9P_9)$	K1	
			2903040	N1	
	(b)		${}^5c_1 \times {}^3c_2$ atau ${}^5c_2 \times {}^3c_1$	P1	
			${}^5c_1 \times {}^3c_2 + {}^5c_2 \times {}^3c_1$	K1	

			45	N1	
					6

12	(a)		$p = a^x$, $\log_a p = x$ atau $q = a^y$, $\log_a q = y$ atau $\log_a pq = z$, $pq = a^z$	P1	
			$pq = a^{x+y}$ atau $a^z = a^{x+y}$	K1	
			$\log_a pq = \log_a p + \log_a q$	N1	
	(b)	(i)	$\log_{ab} \sqrt{p} = \frac{\log_a \sqrt{p}}{\log_a ab}$	P1	
			$\log_a p = m \Leftrightarrow p = a^m$ $\log_b p = n \Leftrightarrow p = b^n$ $\therefore a^m = b^n$ $a^{\frac{m}{n}} = b$	K1	
			$\frac{\frac{1}{2}m}{1 + \frac{m}{n}}$	K1	
			$\frac{mn}{2(m+n)}$	N1	
		(ii)	$\frac{\log_a c}{\log_a \frac{b}{a}}$	K1	
			$\frac{\sqrt{5}}{\sqrt{2}-1}$	N1	
					9

13	(a)	(i)	$a + b = -(n-1)$ atau $ab = 6$	K1	
			$\frac{3(-(n-1))}{6}$ dan $\frac{9}{6}$	K1	
			$2x^2 - (1-n)x + 3 = 0$	N1	
		(ii)	$\frac{a+b}{2} = p-1$	K1	
			$p = \frac{a+b}{2} + 1$ atau setara	N1	
	(b)		$-\left(x^2 - 4kx + \left(\frac{-4k}{2}\right)^2 - \left(\frac{-4k}{2}\right)^2\right) - p$	K1	
			$2k = 2$ atau setara dan $k + 4k^2 = 4k^2 - p$	K1	
			$k = 1, p = -1$	N1	
					8
14	(a)		$t = \frac{152}{p^2}$	P1	
			$\pi p(3p)$ atau $2\pi p\left(\frac{152}{p^2}\right) + \pi(p)^2$	K1	
			$\pi p(3p) + 2\pi p\left(\frac{152}{p^2}\right) + \pi(p)^2$	K1	
			$4\pi\left(p^2 + \frac{76}{p}\right)$	N1	
	(b)		$\frac{dL}{dp} = 8\pi p - \frac{304\pi}{p^2}$ dan selesaikan $\frac{dL}{dp} = 0$	K1	
			$\frac{d^2L}{dp^2} = 8\pi + \frac{608\pi}{(3.362)^3} (> 0)$	N1	
			$L_{\min} = 4\pi\left(3.362^2 + \frac{76}{3.362}\right)$	K1	
			$135.63\pi \quad // \quad 426.16$	N1	

					8
15	(a)		$d_1 = x + 30 - x$ dan $d_2 = (x + 60) - (x + 30)$ Panjang aritmetik, $d = 30$	P1	
	(b)		$\frac{45}{2} [2x + (45 - 1)(30)] = 30600$	K1	
			$\frac{27}{2} [2(20) + (27 - 1)(30)]$ atau / or $\frac{15}{2} [2(20) + (15 - 1)(30)]$	K1	
			$\frac{27}{2} [2(20) + (27 - 1)(30)] -$ $\frac{15}{2} [2(20) + (15 - 1)(30)]$	K1	
			7620	N1	
	(c)		$20 + (n - 1)(30) = 1160$	K1	
			39	N1	
			Bawang Merah atau B	N1	
					8