

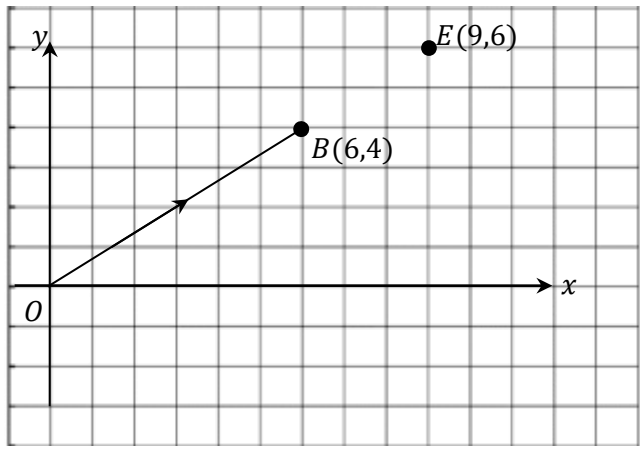
**PRAKTIS BESTARI JUJ 2025
MATEMATIK TAMBAHAN**

PERATURAN PEMARKAHAN

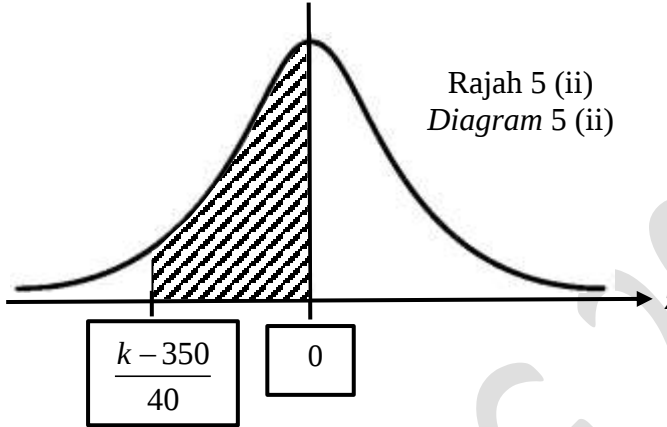
KERTAS 1 SET 1

No	PEMARKAHAN			MARKAH	MARKAH PENUH
1	(a)	(i)	5	P1	
		(ii)	3	N1	
	(b)		$\left(\frac{1}{2}, 0\right)$	N1	
	(c)		$-3 \leq x \leq 4$	N1	
					4
2	(a)		$x^2 - 6x - 4 - p = 0$ $(-6)^2 - 4(1)(-4 - p) > 0$	K1	
			$p > -13$	N1	
	(b)		$3\alpha + 3\beta = \frac{-(-6)}{1}$ $\alpha + \beta = 2$ DAN $9\alpha\beta = \frac{-4 - p}{1}$ $\alpha\beta = \frac{-4 - p}{9}$	K1	
			Ganti nilai $\alpha + \beta = 2$ DAN $\alpha\beta = \frac{-4 - p}{9}$ dalam persamaan punca baru $\frac{\alpha + \beta}{2} = \frac{-(q)}{2}$ DAN $\frac{\alpha\beta}{4} = \frac{\frac{1}{3}}{2}$	K1	
			$p = -2$ $q = -10$	N1	
					5

3	(a)	$d_1 = \log_{10} pq - \log_{10} p$ @ $d_2 = \log_{10} pq^2 - \log_{10} pq$	P1	
		$d_1 = d_2 = \log_{10} q$	N1	
	(b)	Guna $S_n = \frac{n}{2}[2a + (n-1)d]$ $S_6 = \frac{6}{2}[2\log_{10} p + (6-1)\log_{10} q]$	K1	
		$\log_{10} p^6 q^{15}$	N1	
				4
4	(a)	$x = \frac{1(-6) + 2\left(\frac{3}{2}\right)}{1+2}$ @ $y = \frac{1(0) + 2(9)}{1+2}$	K1	
		$(-1, 6)$	N1	
	(b)	Guna $\frac{y_2 - y_1}{x_2 - x_1}$ $m_1 = \frac{6}{5}$	K1	
		* $\frac{6}{5} \times m_2 = -1$ & Ganti $(-1, 6)$ ke dalam $y = * \left(-\frac{5}{6}\right)x + c$ & Selesaikan untuk c OR * $\frac{6}{5} \times m_2 = -1$ & Ganti $(-1, 6)$ ke dalam $(y - y_1) = * \left(-\frac{5}{6}\right)(x - x_1)$	K1	
		$y = -\frac{5}{6}x + \frac{31}{6}$	N1	
				5
5	(a)	$m = \frac{12-4}{4-0}$	K1	
		$\frac{y}{x} = 2\left(\frac{1}{x^2}\right) + 4$	K1	
		$y = \frac{2}{x} + 4x$	N1	
	(b)	14.57	N1	
				4

6	(a)	(i)		P1	
		(ii)	$-2\hat{i} + 9\hat{j} @ \begin{pmatrix} -2 \\ 9 \end{pmatrix}$	N1	
	(b)		$\begin{pmatrix} m \\ -3 \end{pmatrix} = \lambda \begin{pmatrix} -2 \\ 9 \end{pmatrix} @$ $m\hat{i} - 3\hat{j} = \lambda(-2\hat{i} + 9\hat{j})$	K1	
			Banding vektor $\hat{i}$ dan $\hat{j}$ DAN selesaikan m .	K1	
			$\frac{2}{3}$	N1	
					5
7	(a)		$\frac{(1-2x)^{-2}}{(-2)(-2)} + c$ $p = 4$ dan $q = -2$	K1	
				N1, N1	
	(b)		$\left[\frac{1}{4(1-2(1))^2} \right] - \left[\frac{1}{4(1-2(-1))^2} \right]$	K1	
			$\frac{2}{9}$	N1	
					5
8	(a)		$\lim_{x \rightarrow 3} \frac{(x-3)(x-1)}{(2x+1)(x-3)}$	P1	
			$\frac{(3-1)}{(2(3)+1)}$	K1	
			$\frac{2}{7}$	N1	
	(b)		$\frac{(x^2-3)(2)-(2x+1)(2x)}{(x^2-3)^2}$	K1	

			$\frac{-2(x^2 + x + 3)}{(x^2 - 3)^2}$	N1	
					5
9	(a)		${}^3P_3 \times {}^{12}P_{12}$	K1	
			${}^3P_3 \times {}^2P_2 \times {}^{10}P_{10} \times 9$	K1	
			$({}^3P_3 \times {}^{12}P_{12}) - ({}^3P_3 \times {}^2P_2 \times {}^{10}P_{10} \times 9)$	K1	
			2 482 099 200	N1	
	(b)		${}^5P_1 @ {}^4P_4 @ {}^4P_1$	K1	
			${}^5P_1 \times {}^4P_4 \times {}^4P_1$	K1	
			480	N1	
					7
10	(a)		Menggunakan hukum $\log_a mn = \log_a m + \log_a n$	K1	
			Menggunakan hukum $\log_a m^n = n \log_a m$	K1	
			Menghapuskan satu pembolehubah dengan menggunakan kaedah penggantian atau penghapusan.	K1	
			$\log_c p = 3$ dan $\log_c q = -1$	N1	
	(b)		$p = 8$ dan $q = \frac{1}{2}$	N1	
					5
11	(a)		Guna $S_n = \frac{a(r^n - 1)}{r - 1}, r > 1$ $S_4 = \frac{a(r^4 - 1)}{r - 1} @ 10S_2 = \frac{10a(r^2 - 1)}{r - 1}$	K1	
			$\frac{a(r^4 - 1)}{r - 1} = \frac{10a(r^2 - 1)}{r - 1}$	K1	
			$r^4 - 10r^2 + 9 = 0$	N1	
			Selesaikan $r^4 - 10r^2 + 9 = 0$ $r = \pm 1$ dan $r = \pm 3$	K1	
			$r = 3$	N1	

	(b)		$S_6 = \frac{3(3^6 - 1)}{3 - 1}$	K1	
			7.25×1092	K1	
			RM 7917	N1	
					8
12	(a)		 Rajah 5 (ii) Diagram 5 (ii)	N1 N1	
	(b)	(ii)	$P\left(\frac{k-350}{40} \leq Z \leq 0\right) = 0.3729$	P1	
		(ii)	$P\left(Z \leq \frac{k-350}{40}\right) = 0.5 - 0.3729$	P1	
			$z = -1.14$	P1	
			$\frac{k-350}{40} = -1.14$	K1	
			304.4	N1	
					7
13	(a)		Menggunakan hukum: $a^m \times a^n = a^{m+n}$ atau $a^m \div a^n = a^{m-n}$ atau	K1	
			Menggunakan hukum: $a^m \times a^n = a^{m+n}$ atau $a^m \div a^n = a^{m-n}$ atau	K1	
			$a^m \times b^m = (ab)^m$	K1	
			$6^x = \frac{2}{3}$	N1	
	(b)		$\frac{3}{7-\sqrt{6}} \times \frac{7+\sqrt{6}}{7+\sqrt{6}}$ atau $\sqrt{8} = \sqrt{4 \times 2}$ atau $\sqrt{27} = \sqrt{9 \times 3}$	K1	
			$\frac{9+3\sqrt{6}}{9-6} + \frac{3}{2} \times \frac{2}{3} \times \frac{\sqrt{2}}{\sqrt{3}}$	K1	

			$\frac{9+3\sqrt{6}}{9-6} + \frac{\sqrt{6}}{3}$	K1	
			$3 + \frac{4\sqrt{6}}{3}$	N1	
					8
14	(a)		$\frac{1}{\sin 2(60^\circ)}$	K1	
			$\frac{1}{2 \sin 60^\circ \cos 60^\circ}$	K1	
			$\frac{1}{2 \left(\frac{\sqrt{3}}{2} \right) \left(\frac{1}{2} \right)}$	K1	
			$\frac{2\sqrt{3}}{3}$	N1	
	(b)		$\cos 2x = 2\cos^2 x - 1$	K1	
			$8t^2 - 1$	N1	
	(c)		$\left(-\frac{8}{17} \right) \left(-\frac{3}{5} \right) - \left(\frac{15}{17} \right) \left(-\frac{4}{5} \right)$	K1	
			$\frac{84}{85}$	N1	
					8
15	(a)		$\frac{1}{4}r @ \sqrt{\left(\frac{5}{4}r \right)^2 - (r)^2}$	P1	
			$3\alpha(r)$	K1	
			$20 = \frac{1}{4}r + 3\alpha(r) + \sqrt{\left(\frac{5}{4}r \right)^2 - (r)^2}$	K1	
			$r = \frac{20}{3\alpha+1}$	N1	
	(b)		$\frac{1}{2} \times \frac{20}{3\alpha+1} \times \frac{3}{4} \left(\frac{20}{3\alpha+1} \right)$	K1	
			$\frac{1}{2} \times \left(\frac{20}{3\alpha+1} \right)^2 \times 3\alpha$	K1	
			$\left(\frac{1}{2} \times \frac{20}{3\alpha+1} \times \frac{3}{4} \left(\frac{20}{3\alpha+1} \right) \right) - \left(\frac{1}{2} \times \left(\frac{20}{3\alpha+1} \right)^2 \times 3\alpha \right)$	K1	
			$\frac{150 - 600\alpha}{(3\alpha+1)^2}$	N1	
					8