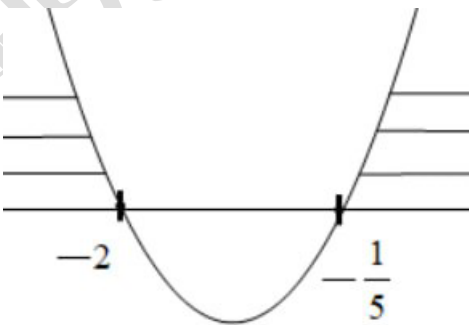


PRAKTIS BESTARI JUJ 2025
MATEMATIK TAMBAHAN

PERATURAN PEMARKAHAN

KERTAS 1 SET 2

No	PEMARKAHAN			MARKAH	MARKAH PENUH
1	(a)		Guna $A = \frac{1}{2}r^2\theta$ $\frac{1}{2}(12.707)r = 88.95$	K1	
			14.00	N1	
	(b)		Guna $s = r\theta$ $14\theta = 12.707$	K1	
			0.9076	N1	
					4
2			$2^{3x} = 8 + \frac{2^{3x}}{2}$	K1	
			$2^{3x}\left(1 - \frac{1}{2}\right) = 8$	K1	
			$3x = 4$	K1	
			$x = \frac{4}{3}$	N1	
					4
3	(a)		$(5x+1)(x+2) \geq 0$ 	K1	
			$x \leq -2$, $x \geq -\frac{1}{5}$	N1	

	(b)	(i)	$m + n = \frac{2k}{3} \quad @ \quad mn = \frac{4+k}{3}$	P1	
			Ganti dan selesaikan $\left(\frac{2}{3}k\right)^2 = \left(\frac{4}{3}\right)^2 + 2\left(\frac{4+k}{3}\right) \text{ dan}$ $(2k+5)(k-4) = 0$	K1	
			$k = -\frac{5}{2}, \quad k = 4$	N1	
		(ii)	Dua punca nyata dan berbeza	N1	
					6
4			$m = -\frac{3}{4}$	N1	
			(2,6)	N1	
			$y - 6 = -\frac{3}{4}(x - 2)$	K1	
			$y = -\frac{3}{4}x + \frac{15}{2} \quad @ \quad \text{setara}$	N1	
					4
5	(a)		$\log_3 \frac{p}{q} = \frac{1}{2}$	K1	
			$p = \sqrt{3}q$	N1	
	(b)		$\frac{26+6\sqrt{2}}{3\sqrt{2}+2} \times \frac{3\sqrt{2}-2}{3\sqrt{2}-2}$	K1	
			$\frac{78\sqrt{2}-52+18(2)-12\sqrt{2}}{18-4}$	K1	
			$\frac{33\sqrt{2}-8}{7}$	N1	
					5
6	(a)		$hi - 12j = \lambda(2i - 4j)$	K1	
			$-12 = \lambda(-4) \quad \text{dan} \quad h = 2\lambda$	K1	
			6	N1	
	(b)		$2m+1=0 \quad @ \quad n-3=0$	K1	

			$m = -\frac{1}{2}, \quad n = 3$	N1,N1	
					6
7	(a)				
			Bentuk graf tan	P1	
			1 kitaran	P1	
			Translasi $\begin{pmatrix} 0 \\ 2 \end{pmatrix}$	P1	
	(b)		Lakar garis lurus $y = 2$	K1	
			2	N1	
					5
8	(a)		$\log_2 y = (\log_2 p)(x+1) + 2$	P1	
			$(x+1)$	N1	
	(b)		$\log_2 p = \frac{6-2}{4-0}$	K1	
			$q = 2$ dan $p = 8$	N1	
					4

9	(a)	(i)	$X = \{0, 1, 2, 3, 4\}$	P1	
		(ii)	0.9163	N1	
	(b)		${}^4C_0 \times \left(\frac{k}{100}\right)^0 \times \left(1 - \frac{k}{100}\right)^{4-0} = 0.0081$	K1	
			70	N1	
					4
10	(a)		$y = -x^2 + c$	K1	
			$c = 10$	N1	
			$1 = -(h)^2 + 10$	K1	
			3	N1	
	(b)		$-\frac{x^3}{3} + 10x$	K1	
			$\left[-\frac{(3)^3}{3} + 10(3)\right] - 0$	K1	
			21	N1	
					7
11			$4y + 4(2x) + 4(13) = 168$ @ setara	P1	
			$2\left[\pi(x)^2\right] + 2\pi(x)(y) = 968$ @ setara	P1	
			$y = 29 - 2x$ @ setara	K1	
			$x^2 + x(29 - 2x) = 154$ @ setara	K1	
			$(x - 22)(x - 7) = 0$	K1	
			$x = 7$	N1	
			$y = 15$	N1	
			Tidak & diameter lilin > lebar kotak	N1	
					8

12	(a)	$({}^2C_2 \times {}^8C_4)({}^4C_4) @ ({}^2C_2 \times {}^8C_2)({}^6C_6)$	K1	
		$({}^2C_2 \times {}^8C_4)({}^4C_4) + ({}^2C_2 \times {}^8C_2)({}^6C_6)$	K1	
		98	N1	
	(b)	${}^1P_1 \times {}^3P_3$	K1	
		${}^1P_1 \times {}^1P_1 \times {}^4P_4 @ {}^4P_1 \times {}^3P_1 \times {}^2P_2 \times {}^2P_2$	K1	
		$({}^1P_1 \times {}^1P_1 \times {}^4P_4)({}^1P_1 \times {}^3P_3) + 2({}^4P_1 \times {}^3P_1 \times {}^2P_2 \times {}^2P_2)({}^1P_1 \times {}^3P_3)$	K1	
		672	N1	
				7
13	(a)	$r_1 = k, r_2 = \frac{1}{2}k, r_3 = \frac{1}{2}\left(\frac{1}{2}k\right) \text{ dan } r_4 = \frac{1}{2}\left(\frac{1}{4}k\right) @$ $A_1 = \pi k^2, A_2 = \pi\left(\frac{1}{2}k\right)^2, A_3 = \pi\left(\frac{1}{4}k\right)^2 \text{ dan}$ $A_4 = \pi\left(\frac{1}{8}k\right)^2$	P1	
		$r = \frac{1}{4}$	N1	
		$\frac{k^2\pi\left[1 - \left(\frac{1}{4}\right)^4\right]}{1 - \frac{1}{4}} = \frac{2125}{16}\pi$	K1	
		$A = 100\pi$	N1	
	(b)	$100\pi\left(\frac{1}{4}\right)^{n-1} = \frac{25}{4} @ T_2 = 100\pi\left(\frac{1}{4}\right)$	K1	
		$n = 3$	N1	
	(c)	$S_\infty = \frac{100\pi}{1 - \frac{1}{4}}$	K1	
		$\frac{400}{3}\pi$	N1	
				8

14	(a)	$h = 51 - x$ atau $r = \frac{x}{2\pi}$	P1	
		Guna $V = \pi(r)^2(h)$, Tunjukkan $V = \frac{x^2}{4\pi}(51 - x)$	N1	
		$\frac{dV}{dx} = \frac{51x}{2\pi} - \frac{3x^2}{4\pi}$	K1	
		$\frac{dV}{dx} = 0$ dan selesaikan $x(x - 20) = 0$	K1	
		$h = 10$ dan $r = \frac{10}{\pi} // 3.183$	N1	
	(b)	$\frac{dV}{dh} = 25\pi$	K1	
		$4 = 25\pi \times \frac{dh}{dt}$	K1	
		$\frac{dh}{dt} = 0.05092$	N1	
				8
15	(a)	$m_{QS} = \frac{3-1}{-1-3} = -\frac{1}{2}$	K1	
		$N = (1, 2)$	K1	
		$\left(-\frac{1}{2}\right)m_{PR} = -1$ dan Gantikan N ke dalam $y = *(2)x + 2$ dan Selesaikan untuk c . OR $\left(-\frac{1}{2}\right)m_{PR} = -1$ dan Gantikan N ke dalam $y - y_1 = *2(x - x_1)$	K1	
		$R(-1, -2)$	N1	
	(b)	$\frac{1(*-1)+2x}{1+2} = *1 @ \frac{1(*-2)+2y}{1+2} = *2$	K1	
		$P(2, 4)$	N1	
		$\frac{1}{2}[2(3) + (-1)(-2) + (-1)(1) + 3(4) - [(-1)(4) + (-1)(3) + 3(-2) + 2(1)]]$	K1	
		$A_{PQRS} = 15$	N1	
				8