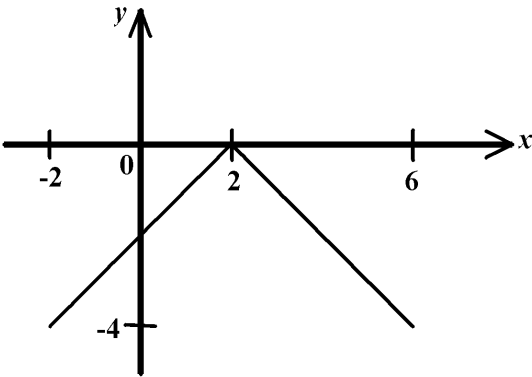


PRAKTIS BESTARI JUJ 2024
MATEMATIK TAMBAHAN

PERATURAN PEMARKAHAN

KERTAS 1 SET 1

No	PEMARKAHAN			MARKAH	MARKAH PENUH
1			$\log_{10} y = (\log_{10} q)x + \log_{10} p$	K1	
			$\log_{10} p = 4$ DAN $\log_{10} q = -\frac{4}{(-3)} \quad \text{or} \quad \log_{10} q = \frac{4-0}{0-(-3)}$	K1	
			$p = 10000 \quad , \quad q = 21.54$	N1	
					3
2	(a)		$\frac{1}{2} \left ((-3)(2) + (5)(-6) + (-1)(h)) - ((h)(5) + (2)(-1) + (-6)(-3)) \right = 38$	K1	
			4	N1	
	(b)		$M_{QR} = -\frac{1}{4}$ atau / or $y - 5 = -\frac{1}{4}(x - 3)$	K1	
			$4y + x = 23$ atau setara / or equivalent	N1	
					4

3	(a)	(i)	-4	N1	
		(ii)	$y^2 = 5 - x$	K1	
			$g(x) = \pm\sqrt{5-x}$, $x < 5$	N1	
	(b)		 Lukis bentuk v terbalik dengan betul Pintasan-x , domain betul dan $(-2, -4), (2, 0), (4, -4)$ dilihat	P1 P1	
			$-4 \leq f(x) \leq 0$	N1	
					6
4	(a)		$7i + 14j$	N1	
	(b)		$\sqrt{(7)^2 + (14)^2}$	K1	
			$\frac{1}{\sqrt{245}}(7\underline{i} + 14\underline{j})$	N1	
					3

5	(a)		$p^2 - 4(1)(3p - 5) < 0$	P1	
			 atau setara	K1	
			$u = 2, v = 10$	N1	
	(b)		Gantikan $(0, -3)$ ke dalam $y = a(x - 2)(2x + 3)$ atau setara	K1	
			$y = \frac{1}{2}(x - 2)(2x + 3)$	N1	
					5
6			$\log_3(x + 1) - \log_9 x^{10} + \log_3 x^4$	P1	
			$\log_3(x + 1) - \frac{\log_3 x^{10}}{2 \log_3 3} \log_9 x^{10} + \log_3 x^4$	K1	
			$\log_3 \frac{(x + 1)}{x}$	N1	
			$\sqrt{3} = \frac{x + 1}{x}$	K1	
			$x = \frac{1}{\sqrt{3} - 1}$	K1	
			$x = \frac{\sqrt{3} + 1}{2}$	N1	
					6
7	(a)		$\frac{11k - 5}{36} = \frac{144}{11k - 5}$	K1	
			Selesaikan persamaan kuadrat / <i>Solve quadratic equation</i>	K1	
			7	N1	
	(b)		2	N1	
					4

8	(a)		$\lim_{\delta x \rightarrow 0} \frac{2}{3}x + \frac{1}{3}\delta x$	K1	
			$\frac{dy}{dx} = \frac{2}{3}x$	N1	
	(b)	(i)	$\frac{dy}{dx} = \frac{(x+1)[1] - x[1]}{(x+1)^2}$	K1	
			$\frac{1}{(q+1)^2}$	N1	
		(ii)	$-p \times m_T = -1 \quad \text{DAN} \quad \frac{1}{(q+1)^2} = \frac{1}{p}$	K1	
			$q = \pm\sqrt{p} - 1$	N1	
					6
9	(a)	(i)	${}^{18}P_4 \times {}^{14}C_8$	K1	
			220 540 320	N1	
		(ii)	${}^2P_2 \times {}^6P_2 \times {}^{14}C_8$	K1	
			180 180	N1	
	(b)		$(11-1)!$	K1	
			$(11-1)! \times 2!$	K1	
			7 257 600	N1	
					7
10	(a)		$3b + \frac{2}{9} + a + 3b = 1$	K1	
			$a = \frac{7}{9} - 6b$	N1	

	(b)		$\left(\frac{7}{9} - 6b\right) + 3b$	K1	
			$3b = {}^3C_0 p^0 q^3$	K1	
			$\frac{7}{9} - q^3$	N1	
					5

11	(a)		$\frac{1}{2}(x)^2 \left(\frac{40^\circ \times \pi}{180^\circ}\right)$	K1	
			$\frac{1}{9}\pi x^2$	N1	
	(b)		$\frac{1}{2}(x)(x) \sin 40^\circ$ ATAU $\frac{1}{2}\left(2x \sin \frac{40^\circ}{2}\right)\left(x \cos \frac{40^\circ}{2}\right)$	K1	
			$\frac{1}{9}\pi x^2 - 0.3214x^2 = 1.15$	K1	
			$x = 6.441$	N1	
					5
12	(a)		<u>Kamir $(2x + k)$ terhadap x</u> $\frac{2x^2}{2} + kx + c$	K1	12
			Ganti $(3,10)$ ke dalam $y = \frac{2x^2}{2} + kx + c$ dan selesaikan c	K1	
			$y = x^2 + kx + 1 - 3k$	N1	
	(b)	(i)	<u>Kamir $(x^2 + kx + 1 - 3k)$ terhadap x DAN Samakan dengan 30</u> $\left[\frac{x^3}{3} + \frac{kx^2}{2} + x - 3kx\right]_{-2}^4 = 30$	K1	

			Guna had $\int_{-2}^4$ ke dalam kamirannya $\left[\left(\frac{(4)^3}{3} + \frac{(4)^2 k}{2} + (4) - 3k(4) \right) - \left(\frac{(-2)^3}{3} + \frac{(-2)^2 k}{2} + (-2) - 3k(-2) \right) \right] = 30$	K1	
			$k = 0$	N1	

		(ii)	$y = 17$ Dilihat DAN <u>Guna rumus isipadu silinder</u> $V_1 = \pi (4)^2 (17)$	K1	
			Kamir $\pi (y - 1)$ terhadap y DAN <u>Guna had $\int_1^{17}$ ke dalam kamirannya</u> $V_2 = \pi \left[\frac{y^2}{2} - y \right]$ $\pi \left[\left(\frac{(17)^2}{2} - (17) \right) - \left(\frac{(1)^2}{2} - (1) \right) \right]$	K1	
			$V_1 - V_2$, $(V_1 > V_2)$	K1	
			144π	N1	
					10
13	(a)		$2\pi \left(\frac{3 + \sqrt{18}}{\sqrt{6}} \right) \times t = 2\pi (10\sqrt{2} + 5)$	P1	
			$\frac{10\sqrt{12} + 5\sqrt{6}}{3 + 3\sqrt{2}} \times \frac{(3 - 3\sqrt{2})}{(3 - 3\sqrt{2})}$	K1	
			$\frac{60\sqrt{12} - 60\sqrt{24} + 30\sqrt{6} - 30\sqrt{12}}{9 - 18}$	K1	
			$-\frac{10}{3}\sqrt{3} + 5\sqrt{6}$	N1	
	(b)		$\left(3 \bullet 2^{\frac{1}{2}} \right)^2 = \left(2^{\frac{x}{2}} \right)^2 + \left(2^{x+1} \right)^2$	P1	
			<u>Guna mana-mana hukum indeks</u> $2^{\frac{1}{2}(2)} \text{ ATAU } 2^2 \times 2^{2x}$	K1	
			<u>Selesaikan persamaan kuadratik DAN banding indeks</u> $(y - 2)(4y + 9) = 0$ DAN $2^x = 2^1$	K1	
			$x = 1$	N1	
					8

14	(a)		Guna mana-mana rumus sudut berganda $1 - (1 - 2 \sin^2 x) + 2 \sin x \cos x$ @ $1 + (1 - 2 \sin^2 x) + 2 \sin x \cos x$	K1	
			$\frac{\sin \theta}{\cos \theta}$	K1	
			$\tan \theta$	N1	
	(b)		Bentuk graf tangen negatif.	P1	
			1 kitaran dan bersama 2 asimptot	P1	
			Persamaan $y = \frac{2x}{\pi}$	P1	
			Lukis garis lurus kecerunan positif melalui asalan	K1	
			3	N1	
					8

15	(a)		-5	N1	
	(b)		$\frac{3-x}{2}$	P1	
			$-1-2\left(\frac{3-x}{2}\right)$	K1	
			$g(x) = x - 4$	N1	
	(c)		$(x-4) - 4$	K1	
			$g^2(x) = x - 8$	NI	
			$g^3(x) = (x-4) - 8 // (x-8) - 4 \text{ DAN}$ $g^4(x) = (x-8) - 8 // (x-4) - 12 // (x-12) - 4$	K1	
			$g^2(x) = x - 2(4) \text{ DAN}$ $g^3(x) = x - 3(4) \text{ DAN}$ $g^4(x) = x - 4(4) \text{ DAN}$ $g^{30}(x) = x - 30(4) \text{ DAN}$ $g^{30}(x) = x - 120$	N1	
					8

