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MODUL PINTAS 2024

TINGKATAN 5

3472/1

MATEMATIK TAMBAHAN
Kertas 1

2 jam

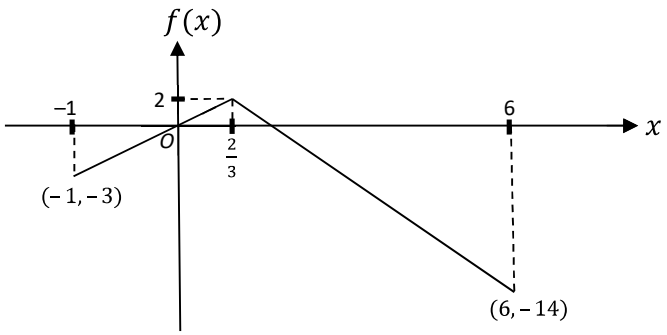
Dua jam

PERATURAN PEMARKAHAN MATEMATIK TAMBAHAN K1 3472/1

NO SOALAN		JAWAPAN	MARKAH
BAHAGIAN A			
1	a	$\cos\theta = \frac{7}{12}$ $0.948\ rad$	K1 N1
	b	$s = 12 \times 0.948$ 11.38	K1 N1
			4
2		$ln\, y = 4x - 1$ $4 = \frac{2-(-1)}{q-0}$ @ $2 = 4q - 1$ $p = -1$, $q = \frac{3}{4}$	P1 K1 N1N1
			4
3	a	$r_1 = \frac{9\pi}{6\pi}$ dan $r_2 = \frac{12\pi}{9\pi}$ dan $r_3 = \frac{15\pi}{12\pi}$ $r_1 \neq r_2 \neq r_3$, *jujukan ini ialah bukan janjang geometri kerana nisbah sepunya, r adalah tidak sama*	K1 N1
	b	$S_n = a + ar + ar^2 + ... + ar^{n-1}$ .....(1) @ $rS_n = ar + ar^2 + ar^3 + ... + ar^n$ .....(2) (2) – (1) $rS_n - S_n = (ar + ar^2 + ar^3 + ... + ar^n) - (a + ar + ar^2 + ... + ar^{n-1})$ $S_n(r-1) = a(r^n - 1)$ $S_n = \frac{a(r^n-1)}{r-1}$	K1 K1 N1
			5

NO SOALAN			JAWAPAN	MARKAH
4	a		$t = \frac{5}{x}$ @ $\frac{5}{t+\frac{3}{60}} = x - 2$ @ setara	P1
			$\frac{5}{x-2} = \frac{5}{x} + \frac{3}{60}$	K1
			$x^2 - 2x - 200 = 0$	
			$\frac{-(-2)\pm\sqrt{(-2)^2-4(1)(-200)}}{2(1)}$	K1
			15.18	N1
	b		$\alpha + \beta = -\left(\frac{-4}{3}\right)$ dan $\alpha\beta = \frac{9}{3}$	P1
			$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\left(\frac{4}{3}\right)}{3}$ @ $\left(\frac{1}{\alpha}\right)\left(\frac{1}{\beta}\right) = \frac{1}{3}$	K1
			$9x^2 - 4x + 3 = 0$	N1
				7
5	a		Kuantiti vektor kerana daya impuls mempunyai magnitud dan arah. *Vector quantity because the impulse force has magnitude and direction*	P1
	b	(i)	Hukum Segitiga digunakan : *Triangle Law used :* $\overrightarrow{PT} = \overrightarrow{PO} + \overrightarrow{OT}$ *atau* $\overrightarrow{PS} = \overrightarrow{PO} + \overrightarrow{OS}$ *atau setara*	P1
			$\frac{6}{5}k\underset{\sim}{x} - \frac{3}{5}k\underset{\sim}{y}$	N1
		(ii)	$\overrightarrow{PS} = 8h\underset{\sim}{x} + (h-1)\underset{\sim}{y}$	N1
		(iii)	$8h = \frac{6}{5}k$ @ $h - 1 = -\frac{3}{5}k$	K1
			$h - 1 = -\frac{3}{5}\left(\frac{20}{3}h\right)$	K1
			$k = \frac{4}{3}$ *dan* $h = \frac{1}{5}$	N1
				7
6	a		$\frac{dy}{dx} = 5 - 2x$ @ $\frac{d^2y}{dx^2} = -2$	K1
			$(5x - x^2)(-2) + (5 - 2x)^2 + 15$	K1
			$6x^2 - 30x + 40$	N1

NO SOALAN			JAWAPAN	MARKAH
	b		$\frac{dL}{dx} = 2x$ @ $\frac{dL}{dt} = \frac{1}{2(3)} \times 3$	K1
			$\frac{1}{2}$	N1
				5
7			$1.571\ rad$	P1
			$\frac{1}{2} \times 12^2 \times {}^*1.571$ @ $\frac{1}{2} \times 12^2 \times \sin {}^*90°$	K1
			$8[(\frac{1}{2} \times 12^2 \times {}^*1.571) - (\frac{1}{2} \times 12^2 \times \sin {}^*90°)]$ @ setara	K1
			228.40	N1
				4
8	a		$(x, y) = \left(\frac{2+6}{2}, \frac{5+(-1)}{2}\right)$	P1
			$\frac{1-{}^*2}{0-{}^*4}$	K1
			$y - 1 = \frac{1}{4}(x - 0)$ atau $y - {}^*2 = \frac{1}{4}(x - {}^*4)$	K1
			$y = \frac{1}{4}x + 1$ @ setara	N1
	b		$\frac{1}{2}\|[(0)(-1) + (6)(5) + (2)(1)] - [(1)(6) + (-1)(2) + (5)(0)]\|$	K1
			14	N1
	c		$\sqrt{(x-0)^2 + (y-1)^2} = \sqrt{(x-6)^2 + (y-(-1))^2}$	K1
			$3x - y - 9 = 0$	N1
				8
9	a		$\frac{8!}{2! \times 2! \times 2! \times 2!}$ @ $\frac{{}^8P_8 \times {}^1P_1}{2! \times 2! \times 2! \times 2!}$	K1
			2520	N1
	b	i	${}^3C_1 \times {}^3C_1 \times {}^2C_1$	K1
			18	N1
		ii	$({}^3C_2 \times {}^3C_1 \times {}^2C_1)$ **or** $({}^3C_1 \times {}^3C_2 \times {}^2C_1)$ **or** $({}^3C_1 \times {}^3C_1 \times {}^2C_2)$	K1
			$({}^3C_2 \times {}^3C_1 \times {}^2C_1) + ({}^3C_1 \times {}^3C_2 \times {}^2C_1) + ({}^3C_1 \times {}^3C_1 \times {}^2C_2)$	K1
			45	N1
				7
10			$3\left[\frac{2x}{1-3x} - 5\right]_{-2}^{1}$	P1
			$3\left[\left(\frac{2(1)}{1-3(1)} - 5\right) - \left(\frac{2(-2)}{1-3(-2)} - 5\right)\right]$	K1
			$-\frac{9}{7}$	N1
				3

NO SOALAN			JAWAPAN	MARKAH
11	a		$m - \frac{27}{m^2} = 0$ 3	K1 N1
	b		$1 + \frac{54}{x^3}$ $1 + \frac{54}{3^3} > 0$ (3, 3) ialah titik minimum	K1 K1 N1
				5
12	a		${}^nC_n (0.75)^n (0.25)^0 = 0.5625$ $(0.75)^n = (0.75)^2$ 2	K1 K1 N1
	b		$2 \times \frac{3}{4}$ $\frac{3}{2}$	K1 N1
				5
			BAHAGIAN B	
13	a	i	$\|3(-1) - 2\|$ atau $\|3(6) - 2\|$ 5 dan 16	K1 N1
		ii	 Graf bentuk $\wedge$ dilakar Titik-titik $(-1, -3)$, $\left(\frac{2}{3}, 2\right)$ dan $(6, -14)$ dilabel	P1 P1
	b		$\frac{2}{k(x)-3} = 3x + 5$ $k(x)[3x + 5] = 2 + 15 + 9x$ $k(x) = \frac{17+9x}{3x+5}, x \neq -\frac{5}{3}$	K1 K1 N1,N1
				8

NO SOALAN		JAWAPAN	MARKAH
14	a	$2^x(2^6)-2^x(2^5)=4$ $2^x=2^{-3}$ -3	K1 K1 N1
	b	$\log_2 m-\frac{\log_2 n}{\log_2 16}=4$ $\log_2\left(\frac{3}{\sqrt[4]{n}}\right)=4$ $m=16\sqrt[4]{n}$	K1 K1 N1
	c	$\frac{2+\sqrt{5}}{2-\sqrt{5}}\times\frac{2+\sqrt{5}}{2+\sqrt{5}}$ $-9-4\sqrt{5}$	K1 N1
			8
15	a	$\cos\alpha=\sqrt{1-p^2}$ $\sec\alpha=\frac{1}{\sqrt{1-p^2}}$	K1 N1
	b	$\frac{(1-\sin x)(2-2\sin x)+2\cos^2 x}{(2\cos x)(2-2\sin x)}$ $\frac{2-4\sin x+2(1)}{4\cos x(1-\sin x)}$ @ $\frac{4(1-\sin x)}{4\cos x(1-\sin x)}$ $\frac{1}{\cos x}$ $\sec x$	K1 K1 N1
	c	Sudut rujukan 60° $\cos 840°=\cos(840°-720°)$ or $-\cos 60°$ $-\frac{1}{2}$	N1 K1 N1
			8