



MODUL PINTAS 2024

TINGKATAN 5

3472/1

MATEMATIK TAMBAHAN

Kertas 1

2 jam

Dua jam

PERATURAN PEMARKAHAN

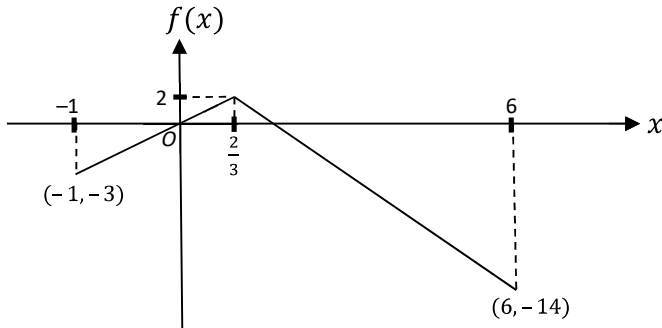
MATEMATIK TAMBAHAN K1

3472/1

NO SOALAN		JAWAPAN	MARKAH
4	a	$t = \frac{5}{x} @ \frac{5}{t + \frac{3}{60}} = x - 2 @ \text{ setara}$ $\frac{5}{x-2} = \frac{5}{x} + \frac{3}{60}$ $x^2 - 2x - 200 = 0$ $\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-200)}}{2(1)}$ 15.18	P1 K1 K1 N1
	b	$\alpha + \beta = -\left(\frac{-4}{3}\right) \text{ dan } \alpha\beta = \frac{9}{3}$ $\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\left(\frac{4}{3}\right)}{3} @ \left(\frac{1}{\alpha}\right)\left(\frac{1}{\beta}\right) = \frac{1}{3}$ $9x^2 - 4x + 3 = 0$	P1 K1 N1
			7
5	a	Kuantiti vektor kerana daya impuls mempunyai magnitud dan arah. <i>Vector quantity because the impulse force has magnitude and direction</i>	P1
	b	(i) Hukum Segitiga digunakan : <i>Triangle Law used :</i> $\overrightarrow{PT} = \overrightarrow{PO} + \overrightarrow{OT} \text{ atau } \overrightarrow{PS} = \overrightarrow{PO} + \overrightarrow{OS} \text{ atau setara}$ $\frac{6}{5}k\hat{x} - \frac{3}{5}k\hat{y}$ (ii) $\overrightarrow{PS} = 8h\hat{x} + (h-1)\hat{y}$ (iii) $8h = \frac{6}{5}k @ h-1 = -\frac{3}{5}k$ $h-1 = -\frac{3}{5}\left(\frac{20}{3}h\right)$ $k = \frac{4}{3} \text{ dan } h = \frac{1}{5}$	P1 N1 N1 K1 K1 N1
			7
6	a	$\frac{dy}{dx} = 5 - 2x @ \frac{d^2y}{dx^2} = -2$ $(5x - x^2)(-2) + (5 - 2x)^2 + 15$ $6x^2 - 30x + 40$	K1 K1 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
		$\frac{1}{2} \times 12^2 \times 1.571$ @ $\frac{1}{2} \times 12^2 \times \sin 90^\circ$	K1
		$8[(\frac{1}{2} \times 12^2 \times 1.571) - (\frac{1}{2} \times 12^2 \times \sin 90^\circ)]$ @ setara	K1
		228.40	N1
			4
8	a	$(x, y) = (\frac{2+6}{2}, \frac{5+(-1)}{2})$	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
9		$3x - y - 9 = 0$	N1
			8
	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
10		45	N1
			7
		$3 \left[\frac{2x}{1-3x} - 5 \right]_{-2}^1$	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	$m - \frac{27}{m^2} = 0$		K1
		3		N1
	b	$1 + \frac{54}{x^3}$		K1
		$1 + \frac{54}{3^3} > 0$		K1
		(3, 3) ialah titik minimum		N1
				5
12	a	${}^nC_n (0.75)^n (0.25)^0 = 0.5625$		K1
		$(0.75)^n = (0.75)^2$		K1
		2		N1
	b	$2 \times \frac{3}{4}$		K1
		$\frac{3}{2}$		N1
				5
BAHAGIAN B				
13	a	i	$ 3(-1) - 2 $ atau $ 3(6) - 2 $	K1
			5 dan 16	N1
		ii	 Graf bentuk $\wedge$ dilakar Titik-titik $(-1, -3)$, $(\frac{2}{3}, 2)$ dan $(6, -14)$ dilabel	P1
				P1
	b	$\frac{2}{k(x)-3} = 3x + 5$		K1
	$k(x)[3x + 5] = 2 + 15 + 9x$		K1	
	$k(x) = \frac{17+9x}{3x+5}, x \neq -\frac{5}{3}$		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° $\cos 840^\circ = \cos (840^\circ - 720^\circ) \text{ or } -\cos 60^\circ$ $-\frac{1}{2}$	N1 K1 N1
			8