

MODUL PINTAS 2024
TINGKATAN 5
MATEMATIK TAMBAHAN
Kertas 1

3472/1

2 jam

Dua jam

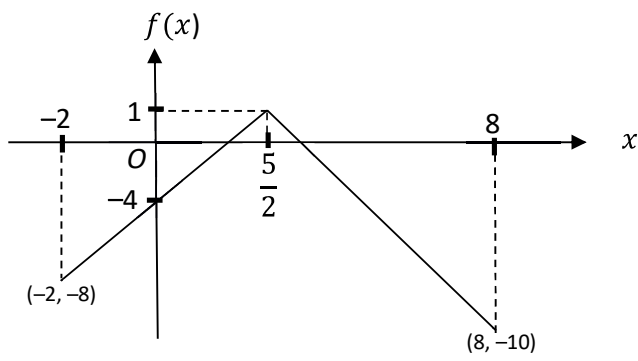
PERATURAN PEMARKAHAN
MATEMATIK TAMBAHAN K1

3472/1

NO SOALAN		JAWAPAN	MARKAH
BAHAGIAN A			
1	a	$\frac{6.4}{8}$ 0.8	K1 N1
	b	$PR^2 = 8^2 + 8^2 - 2(8)(8) \cos 45.83^\circ$ @ setara 6.23	K1 N1
			4
2	$\log_{10} y = 2x - 3$ $2 = \frac{2-(-3)}{q-0}$ @ $2 = 2q - 3$ $p = -3, q = \frac{5}{2}$		P1 K1 N1, N1
			4
3	a	$r_1 = \frac{p^{12}}{p^8}$ dan $r_2 = \frac{p^{16}}{p^{12}}$ dan $r_3 = \frac{p^{20}}{p^{16}}$ $r_1 = r_2 = r_3 = p^4$, jujukan ini ialah jujukan geometri kerana nisbah sepunya, r adalah sama.	K1 N1
	b	$S_n = a + ar + ar^2 + \dots + ar^{n-1}$(1) @ $rS_n = ar + ar^2 + ar^3 + \dots + ar^n$(2) (2) - (1) $rS_n - S_n = (ar + ar^2 + ar^3 + \dots + ar^n) - (a + ar + ar^2 + \dots + ar^{n-1})$ $S_n (r - 1) = a (r^n - 1)$ $S_n = \frac{a(r^n - 1)}{r - 1}$	K1 K1 N1
			5

NO SOALAN		JAWAPAN	MARKAH	
4	a	$\frac{dA}{dr} = 2\pi r$ @ $\frac{dA}{dt} = 2\pi(2) \times 3$ 12π	K1 N1	
	b	$k'(x) = 3mx^2 - 4x + 6$ @ $k''(x) = 6mx - 4$ $6m(2) - 4 = 3m(1)^2 - 4(1) + 6$ $m = \frac{2}{3}$	K1 K1 N1	
			5	
5	a	$t = \frac{150}{x}$ @ $x + 10 = \frac{150}{t - \frac{20}{60}}$ @ setara $\frac{150}{x+10} = \frac{150}{x} - \frac{20}{60}$ $x^2 + 10x - 4500 = 0$ $\frac{-10 \pm \sqrt{10^2 - 4(1)(-4500)}}{2(1)}$ 62.27	P1 K1 K1 N1	
	b	$\alpha + \beta = -\frac{-6}{2}$ dan $\alpha\beta = \frac{9}{2}$ $\alpha + 2 + \beta + 2 = 7$ @ $(\alpha + 2)(\beta + 2) = \frac{29}{2}$ $2x^2 - 14x + 29 = 0$	P1 K1 N1	
			7	
6	a	Kuantiti skalar kerana ketumpatan mempunyai nilai magnitud sahaja. <i>Scalar quantity because density only has magnitude value.</i>	P1	
	b	i	$\vec{AC} = \vec{AO} + \vec{OC}$ $\vec{OC} = 5\vec{p} + 10\vec{q}$	P1 N1
		ii	$\vec{OC} = \frac{3}{n}\vec{p} + \frac{4}{n}\vec{q}$	N1
	iii	$3 = 5n$ @ $4 = 10m$ $4 = 10m\left(\frac{3}{5}\right)$ $n = \frac{3}{5}$ dan $m = \frac{2}{3}$	K1 K1 N1	
			7	

NO SOALAN	JAWAPAN	MARKAH
7	<p>1.047 rad</p> <p>$\frac{1}{2} \times 12^2 \times *1.047$ @ $\frac{1}{2} \times 12^2 \times \sin *60^\circ$</p> <p>$3[(\frac{1}{2} \times 12^2 \times *1.047) - (\frac{1}{2} \times 12^2 \times \sin *60^\circ)]$ @ setara</p> <p>39.09 (39.09 - 39.18) terima jawapan dalam julat ini</p>	<p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>4</p>
8	<p>a $(x, y) = (\frac{2+4}{2}, \frac{6+2}{2})$</p> <p>$\frac{1-*4}{1-*3}$</p> <p>$y - 1 = \frac{3}{2}(x - 1)$ @ $y -*4 = \frac{3}{2}(x -*3)$</p> <p>$y = \frac{3}{2}x - \frac{1}{2}$ @ setara</p> <p>b $\frac{1}{2} [(1)(2) + (4)(6) + (2)(1)] - [(4)(1) + (2)(2) + (1)(6)]$</p> <p>7</p> <p>c $\sqrt{(x-1)^2 + (y-1)^2} = \sqrt{(x-4)^2 + (y-2)^2}$</p> <p>$3x + y - 9 = 0$</p>	<p>P1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>P1</p> <p>N1</p> <p>8</p>
9	<p>a $\frac{6! \times 1}{2! \times 2! \times 2!}$ @ $\frac{6P_6 \times 1P_1}{2! \times 2! \times 2!}$</p> <p>90</p> <p>b i ${}^3C_1 \times {}^3C_1 \times {}^4C_1$</p> <p>36</p> <p>ii ${}^3C_2 \times {}^3C_1 \times {}^4C_1$ @ ${}^3C_1 \times {}^3C_2 \times {}^4C_1$ @ ${}^3C_1 \times {}^3C_1 \times {}^4C_2$</p> <p>$({}^3C_2 \times {}^3C_1 \times {}^4C_1) + ({}^3C_1 \times {}^3C_2 \times {}^4C_1) + ({}^3C_1 \times {}^3C_1 \times {}^4C_2)$</p> <p>126</p>	<p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>K1</p> <p>N1</p> <p>7</p>
10	<p>$\frac{1}{2} \left[\frac{2}{x+5} - 3 \right]_{-1}^2$</p> <p>$\frac{1}{2} \left[\left(\frac{2}{2+5} - 3 \right) - \left(\frac{2}{-1+5} - 3 \right) \right]$</p> <p>$-\frac{3}{28}$</p>	<p>P1</p> <p>K1</p> <p>N1</p> <p>3</p>

NO SOALAN	JAWAPAN	MARKAH
11	$\frac{x[2(x-5)] - 1(x-5)^2}{x^2} @ 1 - \frac{25}{x^2}$ $\frac{x^2 - 25}{x^2} = 0 @ 1 - \frac{25}{x^2} = 0$ <p>(5,0), (-5, -20)</p> $\frac{x^2(2x) - 2x(x^2 - 25)}{(x^2)^2} @ \frac{50}{x^3}$ <p>$x = 5, \frac{d^2y}{(dx)^2} = \frac{2}{5} > 0$, (5,0) ialah titik minimum dan</p> <p>$x = -5, \frac{d^2y}{(dx)^2} = -\frac{2}{5} < 0$, (-5, -20) ialah titik maksimum</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>5</p>
12	<p>a ${}^nC_1(0.25)^1(0.75)^{n-1} = 10 {}^nC_0(0.25)^0(0.75)^n$ $0.025n = 0.75 @$ setara 30</p> <p>b $30(0.25)(0.75)$ 5.625</p>	<p>K1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p> <p>5</p>
BAHAGIAN B		
13	<p>a</p> <p>i $5 - 2(-2) @ 5 - 2(8)$ 9 dan 11</p> <p>ii</p> <div style="text-align: center;">  </div> <p>Graf bentuk \wedge dilakar</p> <p>Titik-titik $(-2, -8)$, $(\frac{5}{2}, 1)$ dan $(8, -10)$ dilabel</p>	<p>K1</p> <p>N1</p> <p>P1</p> <p>P1</p>

NO SOALAN		JAWAPAN	MARKAH
	b	$\frac{4}{k(x)+2} = 2x - 9$ $k(x)[(2x - 9)] = 4 + 18 - 4x$ $k(x) = \frac{22-4x}{2x-9}, x \neq \frac{9}{2}$	P1 K1 N1, N1
			8
14	a	$\frac{2^{2x}}{2} - 9\left(\frac{2^x}{2^2}\right) + 1 = 0$ <p>Anggap $2^x = u$</p> $(2u - 1)(u - 4) = 0 @ 2^x = \frac{1}{2}, 2^x = 4$ <p>-1, 2</p>	K1 K1 N1
	b	$\frac{\log_4 4}{\log_4 x} = 2 + \log_4 2^4$ $\frac{1}{4^4}$ <p>$\sqrt{2}$ atau 1.414</p>	K1 K1 N1
	c	$4(2) + 2\sqrt{2} + 2\sqrt{2} + 1$ $9 + 4\sqrt{2}$	K1 N1
15	a	$\sin \alpha = \sqrt{1 - p^2}$ <p>kosek $\alpha = \frac{1}{\sqrt{1-p^2}}$</p>	K1 N1
	b	$\frac{(1+\cos x)^2 + \sin^2 x}{\sin x (1+\cos x)}$ $\frac{(1+\cos x)^2 + (1-\cos^2 x)}{\sin x (1+\cos x)} \text{ or } \frac{2(1+\cos x)}{\sin x (1+\cos x)}$ <p>2 kosek x</p>	K1 K1 N1

NO SOALAN		JAWAPAN	MARKAH
c	i	Sudut rujukan 60° $-\cos (480^\circ - 360^\circ) @ -\cos 60^\circ$ $-\frac{1}{2}$	N1 K1 N1
			8

TAMAT