

SULIT

**PROGRAM GEMPUR KECEMERLANGAN
SIJIL PELAJARAN MALAYSIA 2024
NEGERI PERLIS**

SIJIL PELAJARAN MALAYSIA 2024

3472/1(PP)

MATEMATIK TAMBAHAN

Kertas 1

Peraturan Pemarkahan

September

UNTUK KEGUNAAN PEMERIKSA SAHAJA

Peraturan pemarkahan ini mengandungi 16 halaman bercetak

No.	Peraturan Pemarkahan	Markah	Jumlah markah
1			
(a)	Guna $\frac{dx}{dt} = \frac{dx}{dp} \times \frac{dp}{dt}$ (1m) $\frac{1}{2} \times 3$ $\frac{3}{2}$ (1m)	2	
(b)	Guna $\frac{dy}{dx} = \frac{dy}{dp} \times \frac{dp}{dx}$ (1m) $\frac{6}{p^3} \times 2$ $\frac{dy}{dx} = \frac{12}{(2x-3)^3}$ (1m)	2	
(c)	Guna $\frac{\delta y}{\delta x} \approx \frac{dy}{dx}$ dan ganti $x = 2$ (1m) $\frac{12}{(2x-3)^3} \times (-0.02)$ $\delta y = \frac{12}{(2(2)-3)^3} \times (-0.02)$ -0.24 (1m)	2	6

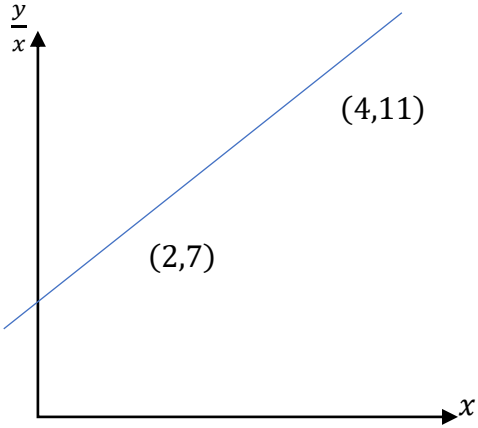
No.	Peraturan Pemarkahan	Markah	Jumlah markah
2			
(a)	$\int_1^2 \frac{2(x^2-9)}{3x^2} dx$ $\int_1^2 \frac{2}{3} - \frac{6}{x^2} dx$ $\left[\left(\frac{2}{3}(2) + \frac{6}{2} \right) - \left(\frac{2}{3}(1) + \frac{6}{1} \right) \right] \quad (1m)$ $\frac{-7}{3} \quad (1m)$	2	
(b)	$g(x) = \frac{1}{2} \left(\frac{dy}{dx} \right) \quad (1m)$ $\frac{1}{2} \left[\left(\frac{2(1)-1}{1^2} \right) - \left(\frac{2(-1)-1}{(-1)^2} \right) \right] \quad (1m)$ $2 \quad (1m)$	3	5

No.	Peraturan Pemarkahan	Markah	Jumlah markah
3			
(a)	$3 \times {}^4P_4$ 1m		
	72 1m	2	
(b)	${}^4C_2 \times {}^6C_2$ $\text{ or } {}^4C_3 \times {}^6C_1$ 1m		
	${}^4C_2 \times {}^6C_2 + {}^4C_3 \times {}^6C_1 + {}^4C_4$ 1m		
	115 1m	3	
			5

No.	Peraturan Pemarkahan	Markah	Jumlah markah
4	$p = 0.75, \quad q = 0.25$		
a)	$P(x = 3) = {}^{10}C_3(0.25)^3(0.75)^7$ (1m) 0.2503 (1m)	2	
b)	$P(x > 8) = P(x = 9) + P(x = 10)$ (1m) $P(x > 8) = {}^{10}C_9(0.75)^9(0.25)^1 + {}^{10}C_{10}(0.75)^3(0.25)^0$ 0.2440 (1m)	2	4

No.	Peraturan Pemarkahan	Markah	Jumlah markah
5			
(a)	Guna $S = r\theta$ 1m $1.1\theta = \frac{21}{27}$ 0.7071 rad. 1m	2	
(b)	$21 = (1.1 + EA)0.7071$ 1m $21 + \frac{21}{27} + 2(29.70 - 1.1)$ 1m 78.98 cm 1m	3	5

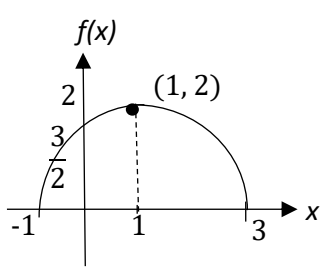
No.	Peraturan Pemarkahan	Markah	Jumlah markah
6			
(a)	Guna $\overrightarrow{AC} = \overrightarrow{AO} + \overrightarrow{OC}$ atau $\overrightarrow{BC} = \overrightarrow{BO} + \overrightarrow{OC}$ (1m) $\overrightarrow{OC} = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$ $\overrightarrow{OB} = \begin{pmatrix} 4 \\ -2 \end{pmatrix}$ $C(2,4)$ dan $B(4,-2)$ (1m) Guna $\left(\frac{2+4}{2}, \frac{4+(-2)}{2}\right)$ (1m) $(3,1)$ (1m)	4	
(b)	Guna $\overrightarrow{AC} = \sqrt{6^2 + 3^2}$ (1m) $\widehat{AC} = \frac{6}{\sqrt{45}}i + \frac{3}{\sqrt{45}}j$ (1m)	2	
			6

No.	Peraturan Pemarkahan	Markah	Jumlah markah
7			
(a)	 Paksi dan garis lurus 1m (2,7) dan (4,11) 1m	2	
(b)	$k = \frac{11-7}{4-2} = 2$ 1m Ganti (2,7) ke dalam $\frac{y}{x} = 2x + h$ 1m $h = 3$ 1m	3	5



No.	Peraturan Pemarkahan	Markah	Jumlah markah
8	$y = -6x - 15$ 1m Hapus satu anu (melibatkan satu persamaan linear dan satu persamaan tak linear dalam sebutan m dan n) $3x^2 + 9x - (-6x - 15) = 3$ 1m Selesaikan persamaan kuadratik <u>$ax^2 + bx + c = 0$ for $b \neq 0$</u> 1m Pemfaktoran $(x + 4)(x + 1) = 0$ Rumus $x = \frac{-(5) \pm \sqrt{(5)^2 - 4(1)(4)}}{2(1)}$ 1m $x = -4$ atau $x = -1$ 1m $y = 9$ atau $y = -9$	5	5

No.	Peraturan Pemarkahan	Markah	Jumlah markah
9			
(a)	$\frac{2}{\sqrt{2}-2} \times \frac{\sqrt{2}+2}{\sqrt{2}+2}$ (1m) $\frac{2(\sqrt{2}+2)}{2-4}$ (1m) $-\sqrt{2}-2$ (1m)	3	
(b)	$\frac{\log_a hk}{\log_a a^3}$ (1m) $\frac{1}{3} \log_a h + \frac{1}{3} \log_a k$ (1m)	2	
(c)	$\log_{a^3} 3q = 1$ (1m) $q = \frac{a^3}{3}$ (1m)	2	
			7

No.	Peraturan Pemarkahan	Markah	Jumlah markah
10	(a) Bentuk $\cap$ 1m Titik maksimum (1,2) 1m $(0, \frac{3}{2}), (-1, 0), (3, 0)$ 1m 	3	
(b)	$f(x) = \frac{-1}{2}(x + 1)^2 + 2$ 1m	1	
			4

No.	Peraturan Pemarkahan	Markah	Jumlah markah
11			
(a)	$P(0,2)$ 1m	1	
(b)	Guna $\frac{1}{2} \times m_2 = -1$ 1m $m_2 = -2$ Guna $\frac{y-y_1}{x-x_1} = m_2$ atau kaedah yang setara 1m $\frac{y-3}{x-2} = -2$ $y = -2x + 7$ 1m	3	
(c)	$\left(\frac{1x+4(0)}{1+4}, \frac{1y+4(3)}{1+4}\right) = (2,3)$ $\frac{1x+4(0)}{1+4} = 2$ atau $\frac{1y+4(3)}{1+4} = 3$ 1m $R(10,3)$ 1m	2	
			6

No.	Peraturan Pemarkahan	Markah	Jumlah markah
12			
(a)	$a = 2, \quad r = -3 \quad \boxed{1\text{m}}$ $T_2 = 2(-3)^{2-1} = -6 \quad \textcircled{1\text{m}}$ $T_3 = 2(-3)^{3-1} = 18$ $T_4 = 2(-3)^{4-1} = -54 \quad \textcircled{1\text{m}}$	3	
(b)	Guna $\frac{2-m}{6+2m} = \frac{4-2m}{2-m}$ $\textcircled{1\text{m}}$ $m = -2 \quad \boxed{1\text{m}}$	3	6

No.	Peraturan Pemarkahan	Markah	Jumlah markah
13			
(a)	Paksi dan garis lurus (1m) $(4,2)$ dan $(-8,-2)$ (1m)	2	
(b)			
(i)	$f^{-1}(x) = \frac{x+2}{3}$ (1m) Gantikan $(-8,-2)$ atau $(4,2)$ ke dalam $f^{-1}(x) = \frac{x+2}{3}$ (1m) $f^{-1}(x)$ ialah songsangan bagi $f(x) = 3x - 2$ (1m)	3	
(ii)	$-8 \leq x \leq 4$ (1m)	1	
(iii)	$\frac{x+2}{3} = 3x - 2$ (1m) $x = 1$ (1m)	2	
			8

No.	Peraturan Pemarkahan	Markah	Jumlah markah
14			
(a)	$\frac{dx}{dh} = 1 + \frac{1}{h^2} = \frac{h^2+1}{h^2}$ (1m) $\frac{dy}{dh} = 2 - \frac{1}{h^2} = \frac{2h^2-1}{h^2}$ (1m) Guna $\frac{dy}{dx} = \frac{dy}{dh} \times \frac{dh}{dx}$ (1m) $\frac{2h^2-1}{h^2} \times \frac{h^2}{h^2+1}$ $\frac{2h^2-1}{h^2+1}$ (1m)	4	
(b)	Guna $\frac{dy}{dx} = 0$ (1m) $\frac{2h^2-1}{h^2+1} = 0$ $h = \frac{1}{2}$ (1m) Ganti $h = \frac{1}{2}$ ke dalam $x = h - \frac{1}{h}$ dan $y = 2h + \frac{1}{h}$ (1m) $(-\frac{3}{2}, 3)$ (1m)	4	
			8

No.	Peraturan Pemarkahan	Markah	Jumlah markah
15			
(a)	Guna $\sin 2x = 2 \sin x \cos x$ (1m) $3(2 \sin x \cos x) = \sin x$ $\sin x(6 \sin x - 1) = 0$ (1m) $\sin x = 0$ atau $6 \sin x - 1 = 0$ (1m) $x = 0^\circ, 180^\circ, 360^\circ$ atau $x = 80.41^\circ, 279.59^\circ$ (1m) $x = 0^\circ, 80.41^\circ, 180^\circ, 279.59^\circ, 360^\circ$ (1m)	5	
(b)	$\tan x = \frac{-4}{3}$ (1m) Guna $\tan x = \frac{2 \tan x}{1 - \tan^2 x}$ (1m) $\frac{2\left(\frac{-4}{3}\right)}{1 - \left(\frac{-4}{3}\right)^2}$ $\frac{24}{7}$ (1m)	3	8