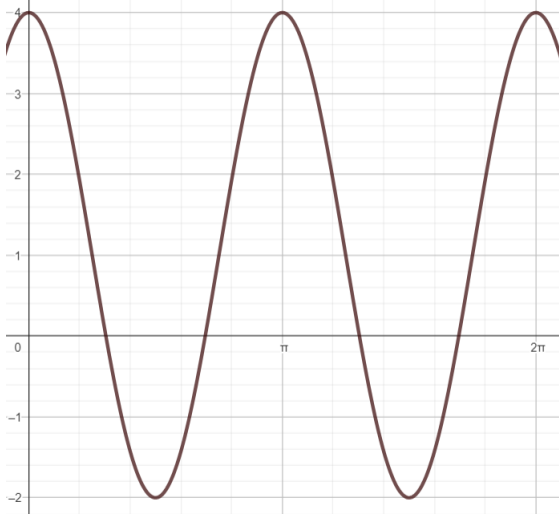


**PERATURAN PEMARKAHAN
PEPERIKSAAN PERCUBAAN SPM TAHUN 2024
YAYASAN ISLAM KELANTAN**

**MATEMATIK TAMBAHAN
KERTAS 2**

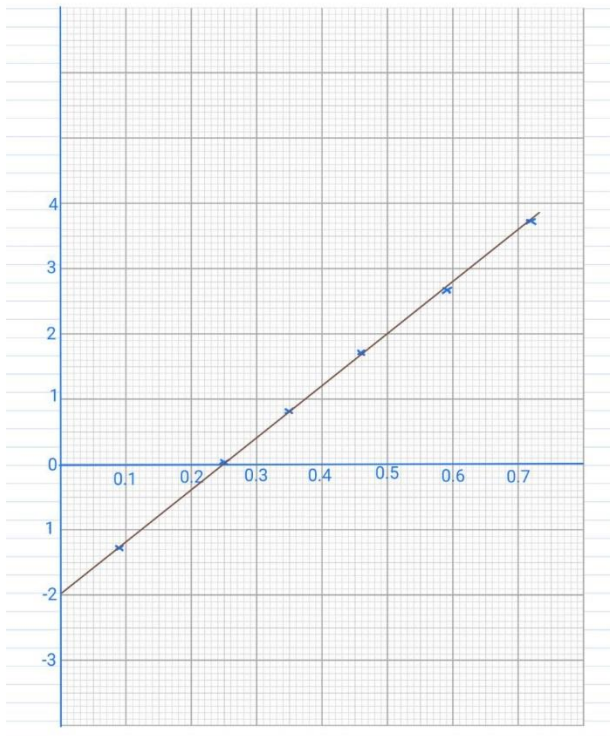
NO.		PERATURAN PEMARKAHAN	SUB-MARKAH	MARKAH PENUH
BAHAGIAN A				
1	(a)	$m+n = -\frac{b}{a} \text{ atau } mn = \frac{c}{a}$ $mn \times -\frac{1}{m+n}$ $-\frac{mn}{m+n}$	P1 K1 N1	7
	(b)	$-3 \left[x^2 + 2x + \left(\frac{2}{2}\right)^2 - \left(\frac{2}{2}\right)^2 \right] + 7$ $10 - 3(x+1)^2$ $10 - 3(x+1)^2 = 1$ $x = -1 + \sqrt{3} \text{ dan } x = -1 - \sqrt{3}$	K1 N1 K1 N1	
2	(a)	$m_{MC} \times -\frac{2}{3} = -1$ $y - 4 = \frac{3}{2}(x - 6)$ <p><i>Hapuskan 1 pembolehubah ,</i></p> $3x - 4\left(\frac{3}{2}x - 5\right) - 8 = 0 \text{ atau setara}$ $M(4,1)$	K1 K1 K1 N1	7
	(b)	$\sqrt{(6-4)^2 + (4-1)^2} \text{ atau } \sqrt{(x-4)^2 + (y-6)^2}$ $\sqrt{(6-4)^2 + (4-1)^2} = \sqrt{(x-4)^2 + (y-6)^2}$ $x^2 + y^2 - 8x - 12y + 39 = 0$	K1 K1 N1	

3	(a)	(i)	$f^{-1}(x) = \frac{x+7}{3}$	N1	8
		(ii)	$3(3x-7)-7$ $9\left(\frac{2s}{3}\right)-28=8$ $s=6$	K1 K1 N1	
	(b)	(i)	$4(2t+3)^2+3$ $Vh(t) = 16t^2 + 48t + 39$	K1 N1	
		(ii)	$Vh(t) = 16t^2 + 48t + 39$ 39	K1 N1	
4	(a)	$x \log 0.62 > \log 3$ $x < -2.30$	K1 N1	7	
	(b)	$\log_9 x + \log_9 y = m$ atau $\log_9 x - \log_9 y = n$ Hapuskan satu pembolehubah $2\log_9 x = m+n$ atau setara $x = 3^{m+n}$ $\frac{m+n}{2} - \log_9 y = n$ $y = 3^{m-n}$	K1 K1 N1		
					K1 N1
5	(a)	$\frac{1}{2}(2n)(n-x)$ atau $\frac{1}{2}(x)(2n-2x)$ atau $\frac{1}{2}(2x)(n)$ atau $(2n)(n)$ $(2n)(n) - \frac{1}{2}(2n)(n-x) - \frac{1}{2}(x)(2n-2x) - \frac{1}{2}(2x)(n)$ $(n^2 - nx + x^2)$	K1 K1 N1	7	
		(b)	$\frac{dLuas}{dx} = -n + 2x$ dan samakan dengan 0 $x = \frac{n}{2}$		K1 N1
	(c)	$n^2 - n\left(\frac{n}{2}\right) + \left(\frac{n}{2}\right)^2$ $\frac{3}{4}n^2$	K1 N1		

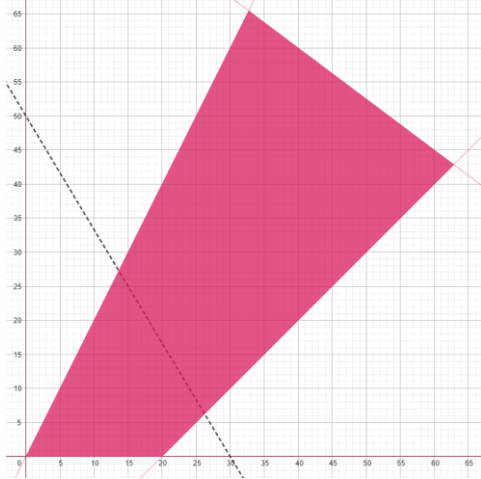
6	(a)	$4(1 - \sin^2 x) - 2\sin^2 x$ $1 + 3(1 - 2\sin^2 x)$ $3\cos 2x + 1$	K1 K1 N1	8
	(b)	Bentuk graf kosinus Amplitude = 3 (min = - 2, max =4) 2 kitar untuk $0 \leq x \leq 2\pi$ Anjakan 1 unit ke atas 	P1 P1 P1 P1	
	(c)	min = - 2, max =4	N1	
7	(a)	$\tan \theta = \frac{9}{5}$ $\theta = 1.064$	K1 N1	7
	(b)	$\frac{1}{2}(9)^2 \left(\frac{3.142}{2} \right)$ atau $\frac{1}{2}(9)(5)$ atau $\frac{1}{2}(14)^2 (1.064)$ $A = \frac{1}{2}(14)^2 (1.064) - \frac{1}{2}(9)^2 \left(\frac{3.142}{2} \right) - \frac{1}{2}(9)(5)$ $B = \frac{1}{2}(9)^2 \left(\frac{3.142}{2} \right) - \frac{1}{2}(9)(5)$ A+ B 59.272	K1 K1 K1 K1 N1	

BAHAGIAN B

8	(a)	$\overline{TU} = \frac{2}{3}(\overline{TR} + \overline{RS})$ atau $\overline{RU} = \overline{RT} + \overline{TU}$ $-4\tilde{x} + \frac{8}{3}\tilde{y}$ $2\tilde{x} + \frac{8}{3}\tilde{y}$		K1	10
		N1	N1		
	(b)	$2\tilde{x} + \frac{8}{3}\tilde{y} = \lambda(3x + 4y)$ $3\lambda = 2$ dan $4\lambda = \frac{8}{3}$ $\lambda_1 = \lambda_2 = \frac{2}{3}$ $\overline{RU} = \frac{2}{3}\overline{RV}$ segaris		K1	
		K1	K1		
		N1	N1		
(c)	(i)	$\frac{24}{2} = 12$		N1	
	(ii)	$\frac{1}{2}(6 \times 2)t = 24$ atau $\frac{1}{2}(3 \times 2)t = 12$ 4		K1 N1	
9	(a)	(i)	${}^8C_0(0.3)^0(0.7)^8$ atau ${}^8C_1(0.3)^1(0.7)^7$ atau mana ² kombinasi $1 - {}^8C_0(0.3)^0(0.7)^8 - {}^8C_1(0.3)^1(0.7)^7$ 0.7447		K1 K1 N1
		(ii)	$168 = n(0.3)(0.7)$ 800		K1 N1
	(b)	(i)	$\frac{580 - 600}{40} = -0.5$ $P(Z > -0.5) = 1 - 0.3085$ 0.6915		P1 K1 N1
		(ii)	$\frac{m - 600}{40} = 0.7$ $10\frac{7}{15}$ jam		K1 N1
					N1
10	(a)	(i)	$a = 2$		N1
		(ii)	$\frac{x^4}{4} - 8x$		K1 K1

		<p>Gantikan had $(0 \rightarrow 2)$ atau $(2 \rightarrow 4)$ kedalam $\frac{x^4}{4} - 8x$</p> $ -12 + 32 - (-12)$ 56	K1	10														
	(b)	<p>$\pi(4)^2 p$ atau $\frac{3y^2}{2}$</p> <p>Gantikan had $(0 \rightarrow p)$ kedalam $\frac{3y^2}{2}$</p> $\left[\pi(4)^2 p \right] - \pi \left[\frac{3y^2}{2} \right]_0^p = \frac{69}{2} \pi$ $(3p - 23)(p - 3) = 0$ $p = 3$	K1 K1 K1 K1 N1															
11	(a)	<table border="1"> <tr> <td>$y\sqrt{x}$</td> <td>-1.28</td> <td>0.03</td> <td>0.83</td> <td>1.72</td> <td>2.69</td> <td>3.72</td> </tr> <tr> <td>$x\sqrt{x}$</td> <td>0.09</td> <td>0.25</td> <td>0.35</td> <td>0.46</td> <td>0.59</td> <td>0.72</td> </tr> </table>	$y\sqrt{x}$	-1.28	0.03	0.83	1.72	2.69	3.72	$x\sqrt{x}$	0.09	0.25	0.35	0.46	0.59	0.72	N1 N1	10
$y\sqrt{x}$	-1.28	0.03	0.83	1.72	2.69	3.72												
$x\sqrt{x}$	0.09	0.25	0.35	0.46	0.59	0.72												
	(b)	<p>Rujuk graf</p> <p>Graf garis lurus $y\sqrt{x}$ melawan $x\sqrt{x}$ dilukis</p> <ul style="list-style-type: none"> - Paksi-paksi betul dan skala seragam - Sekurang-kurang satu* titik diplot betul - Guna data yang diberi dalam soalan <p>6* titik diplot dengan betul</p> <p>Garis lurus penyuaian terbaik</p> <p>Sekurang-kurangnya</p> <ul style="list-style-type: none"> -5* titik diplot -* Jadual dalam 2 tempat perpuluhan 	K1 N1 N1															

	(c)	(i)	$y\sqrt{x} = mx\sqrt{x} + n$ $m = 8$ $n = -2$	P1 N1 N1	
		(ii)	$x\sqrt{x} = 0.5$ $x = 0.63$	N1 N1	
BAHAGIAN C					
12	(a)		$\frac{8.40}{x} \times 100 = 105$ 8	K1 N1	10
	(b)		$\frac{y+1.5}{y} \times 100 = 120$ $y = 7.50$ $z = 9$	K1 N1 N1	
	(c)	(i)	$\frac{P_{2023}}{35.60} \times 100 = 112.92$ 40.20	K1 N1	
		(ii)	$\frac{(105 \times 5) + (120 \times 3) + (120m) + (110 \times 1)}{5 + 3 + m + 1} = 112.92$ 3	K1K1 N1	
13	(a)		$\frac{\sin 55}{CD} = \frac{\sin 70}{12}$ 10.46	K1 N1	10
	(b)		$AD^2 = 6.8^2 + 10.46^2 - 2(6.8)(10.46)\cos 38^\circ$ 6.599	K1 N1	
	(c)		$\frac{1}{2}(6.8)(10.46)\sin 38^\circ$ 21.90	K1 N1	
	(d)		$\sin 55^\circ = \frac{DM}{10.46}$ $AM = \sqrt{6.8^2 - 6^2}$ $6.599^2 = 3.2^2 + 8.568^2 - 2(3.2)(8.568)\cos \theta$ 43°	K1 K1 K1 N1	
14	(a)		$2pt - 5$ $2p(2) - 5 = 15$ 5	K1 K1 N1	10

	(b)	$10t - 5 < 0$ $0 \leq t < \frac{1}{2}$	K1 N1	
	(c)	$5t^2 - 5t = 0$ dan selesaikan $t = 0$ dan $t = 1$	K1 N1	
	(d)	$\frac{5t^3}{3} - \frac{5t^2}{2}$ $\left \left(\frac{5(1)^3}{3} - \frac{5(1)^2}{2} \right) - 0 \right + \left[\left(\frac{5(3)^3}{3} - \frac{5(3)^2}{2} \right) - \left(\frac{5(1)^3}{3} - \frac{5(1)^2}{2} \right) \right]$ $24\frac{1}{6}$	K1 N1	
15	(a)	I : $3x + 4y \leq 360$ II : $y \leq 2x$ III : $x - y \leq 20$	N1 N1 N1	
	(b)	 <p>Lukis dengan betul sekurang-kurangnya 1 garis ketaksamaan Lukis dengan betul kesemua garis ketaksamaan Lorekaan rantau R yang betul</p>	K1 N1 N1	
	(c)	(i)	65 biji sosej daging	N1
		(ii)	Lukis garis fungsi objektif 62 biji sosej ayam 43 biji sosej daging	K1 N1 N1