

SULIT

## MATEMATIK TAMBAHAN (2)

2

Nombor	Penyelesaian dan Pemarkahan	Sub Markah	Markah Penuh
BAHAGIAN A [ 40 MARKAH ]			
1	$x = 2y - 1 \quad \text{atau} \quad y = \frac{1+x}{2} \quad \text{P1}$ $(2y-1)(y) + (2y-1)^2 = 26 \quad \text{atau} \quad x\left(\frac{1+x}{2}\right) + x^2 = 26 \quad \text{K1}$ $(2y-5)(3y+5) = 0 \quad \text{atau} \quad (x-4)(3x+13) = 0 \quad \text{K1}$ $y = \frac{5}{2}, y = -\frac{5}{3} \quad \text{atau} \quad x = 4, x = -\frac{13}{3} \quad \text{N1}$ $x = 4, x = -\frac{13}{3} \quad \text{atau} \quad y = \frac{5}{2}, y = -\frac{5}{3} \quad \text{N1}$ $\left(4, \frac{5}{2}\right), \left(-\frac{13}{3}, -\frac{5}{3}\right) \quad \text{N1}$	6	6
2	<p>(a) <math>\frac{2^{3(m+n)}}{2^{2n}}</math> K1</p> $\frac{2^{3m+3n}}{2^{2n}} \quad \text{atau} \quad 2^{3m+3n-2n} \quad \text{atau} \quad 2^m \cdot 2^{3y} \quad \text{K1}$ $xy^3 \quad \text{N1}$	3	



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4. (a)			
	<p>Bentuk graf kos atau - kos                      P1</p> <p>Amplitude [ maks = 2 , min = 0 ]                      P1</p> <p>2 kitaran untuk <math>0 \leq x \leq 2\pi</math>                      P1</p> <p>Gerakan menegak ke atas graf 1 unit                      P1</p>	4	
	<p>(b) Persamaan garis lurus betul</p> <p><math>1 - \cos 2x = 2 - \frac{x}{2\pi}</math>    atau    <math>y = 2 - \frac{x}{2\pi}</math>                      K1</p> <p>Melakar garis lurus dengan kecerunan dan pintasan - y yang betul                      K1</p>		
	<p>Bilangan penyelesaian = 4                      N1</p>	3	7



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6	<p>(a) (i) Kecerunan PQ, <math>m = \frac{-6 - 0}{0 - (-3)} = -2</math> atau</p> $y - (-5) = -2(x - (-4)) \quad \text{K1}$ $y = -2x - 13 \quad \text{N1}$ <p>(ii) Luas = <math>\frac{1}{2} \begin{vmatrix} 0 &amp; -3 &amp; -4 &amp; 0 \\ -6 &amp; 0 &amp; -5 &amp; -6 \end{vmatrix}</math> atau</p> $= \frac{1}{2}  (15 + 24) - (18)  \quad \text{K1}$ $= 10.5 \quad \text{N1}$ <p>(b) <math>\sqrt{(x-0)^2 + (y+6)^2}</math> atau <math>\sqrt{(x+3)^2 + (y-0)^2} \quad \text{K1}</math></p> $2\sqrt{(x-0)^2 + (y+6)^2} = \sqrt{(x+3)^2 + (y-0)^2} \quad \text{K1}$ $3x^2 + 3y^2 + 48y - 6x + 135 = 0 \quad \text{N1}$	4	7

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	BAHAGIAN B			
7	(a)	$\sin \frac{1}{2}\theta = \frac{4}{6}$ K1	2	
		$\theta = 1.46 \text{ rad}$ N1		
	(b)	$S_{\text{sektor}} = 6(1.46)$ K1	4	
	$= 8.76$ N1			
	Perimeter = $8.76 + 2(6) + 2(6) + 2(8)$ K1	4		
	$= 48.76 \text{ cm}$ N1			
	(c)	Luas sektor OEF = $\frac{1}{2}(6)^2(1.46) = 26.28$ K1	4	10
	Luas segiempat = 48 K1			
	Luas kawasan berlorek = $48 - 26.68$ K1			
	$= 21.72$ N1			
8	(a)	$\frac{dy}{dx} = -\frac{48}{(3x+1)^2}$ K1	4	
		Kec-normal = $-\frac{1}{6}$ K1		
		$y - 2 = -\frac{1}{6}(x + 1)$ K1		
		$6y + x - 11 = 0$ atau Setara N1		

**MATEMATIK TAMBAHAN ( 2 )**

Nombor	Penyelesaian dan Pemarkahan	Sub Markah	Markah Penuh														
	<p>(b) (i) Luas Kawasan</p> $\left[ \frac{8}{3(3x+1)} \right]_{-3}^{-2} \quad \text{K1}$ $\left[ \left( \frac{-8}{3(-6+1)} \right) - \left( \frac{-8}{3(-9+1)} \right) \right] \quad \text{K1}$ $\frac{1}{5} \quad \text{N1}$ <p>(ii) Isipadu Janaan</p> $\pi \left[ \frac{-64}{9(3x+1)^3} \right]_{-3}^{-2} \quad \text{K1}$ $\pi \left[ \left( \frac{-64}{9(-5)^3} \right) - \left( \frac{-64}{9(-8)^3} \right) \right] \quad \text{K1}$ $\frac{43}{1000} \pi \quad \text{N1}$	6	10														
9	<p>(a)</p> <table border="1" data-bbox="379 1189 1102 1272"> <thead> <tr> <th>x</th> <th>1</th> <th>2</th> <th>4</th> <th>6</th> <th>8</th> <th>9</th> </tr> </thead> <tbody> <tr> <td><math>\log_{10} y</math></td> <td>0.84</td> <td>0.99</td> <td>1.29</td> <td>1.57</td> <td>1.87</td> <td>2.00</td> </tr> </tbody> </table> <p>Semua nilai <math>\log_{10} y</math> betul <math>\text{N1}</math></p> <p>Paksi betul dan skala seragam <math>\text{K1}</math></p> <p>Plot 5 titik betul <math>\text{N1}</math></p> <p>Garis lurus penyuaian terbaik <math>\text{N1}</math></p> <p>(b)</p> $\log_{10} y = \log_{10} R + x \log_{10} S \quad \text{P1}$ <p>(i) <math>\log_{10} S = 0.1411 \quad \text{K1}</math></p> $S = 1.384 \quad \text{N1}$	x	1	2	4	6	8	9	$\log_{10} y$	0.84	0.99	1.29	1.57	1.87	2.00	4	
x	1	2	4	6	8	9											
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	$\overline{OS} = 6i + 18j \quad \text{N1}$ <p>(ii) <math> \overline{OS}  = \sqrt{6^2 + 18^2} = \sqrt{360} \quad \text{P1}</math></p> $\frac{\wedge}{OS} = \frac{6i + 18j}{\sqrt{360}} \quad \text{N1}$	4	10
11	<p>(a) <math>p = 0.65</math> dan <math>q = 0.35 \quad \text{P1}</math></p> <p>(i) Sisihan piawai  <math display="block">\sigma = \sqrt{20(0.65)(0.35)} \quad \text{K1}</math> <math display="block">= 2.133 \quad \text{N1}</math></p> <p>(ii) <math>P(X = 2) = {}^{20}C_2 (0.65)^2 (0.35)^{18} \quad \text{K1}</math> <math display="block">= 0.1614 \quad \text{N1}</math></p> <p>(b) <math>\mu = 2</math> dan <math>\sigma = 0.8</math></p> <p>(i) <math>P(X &gt; 1) = P\left(Z &gt; \frac{1-2}{0.8}\right)</math> atau <math>P(Z &gt; -1.25) \quad \text{K1}</math> <math display="block">= 0.8944 \quad \text{N1}</math></p> <p>(ii) <math>P(X &lt; k) = 0.68</math> atau  <math display="block">P(X &gt; k) = 0.32 \quad \text{K1}</math> <math display="block">\frac{k-2}{0.8} = 0.468 \quad \text{K1}</math> <math display="block">k = 2.374 \quad \text{N1}</math></p>	5	10

Nombor	Penyelesaian dan Pemarkahan	Sub Markah	Markah Penuh
<b>BAHAGIAN C</b>			
12	<p>(a) (i) Guna petua sin untuk cari panjang RU</p> $\frac{RU}{\sin 56} = \frac{9}{\sin 68} \quad \text{K1}$ $RU = 8.0473 \text{ cm (terima 8.05)} \quad \text{N1}$ <p>(ii) Guna petua kos untuk cari TU</p> $TU^2 = 7^2 + 8.0473^2 - 2(7)(8.0473) \cos \angle 124^\circ \quad \text{K1}$ <p>Guna petua sin untuk cari <math>\angle STU</math></p> $\frac{13.2951}{\sin 124} = \frac{8.0473}{\sin \angle STU} \quad \text{K1}$ $\angle STU = 30.12^\circ \quad \text{N1}$ <p>[ Nota : terima hanya 2 titik perpuluhan ]</p> <p>(b) (i) <math>VM = 5</math> dan <math>VL = \sqrt{89}</math> dan <math>JL = \sqrt{208}</math> P1</p> <p>Guna petua kos untuk cari <math>\angle JVL</math></p> $208 = 13^2 + 89 - 2(13)(\sqrt{89}) \cos \angle JVL \quad \text{K1}$ $\angle JVL = 78.24^\circ \quad \text{N1}$ <p>(ii) Luas = <math>\frac{1}{2}(13)(\sqrt{89}) \sin 78.24</math> K1  = 60.03 N1</p>	5	10
13	<p>(a) <math>4(2-t) = 0</math> K1  <math>t = 2</math></p>		

Nombor	Penyelesaian dan Pemarkahan,	Sub Markah	Markah Penuh
	$V = \int 4(2-t) dt$ $= 8t - 2t^2 + c$ $= 8t - 2t^2 + 10 \quad \text{K1}$ $V_{\max} = 8(2) - 2(2)^2 + 10 = 18 \quad \text{N1}$ (b) $8t - 2t^2 + 10 = 0$ $2t^2 - 8t - 10 = 0$ $2(t-5)(t+1) = 0 \quad \text{K1}$ $t = 5$ $S = \int 8t - 2t^2 + 10 dt$ $= 4t^2 - \frac{2}{3}t^3 + 10t \quad \text{K1}$ $= 4(5)^2 - \frac{2}{3}(5)^3 + 10(5) \quad \text{K1}$ $= 66\frac{2}{3} \quad \text{N1}$ (c) $t = 8, \quad S = 4(8)^2 - \frac{2}{3}(8)^3 + 10(8) \quad \text{K1}$ $= -5\frac{1}{3}$ $\text{Jumlah jarak} =  S_5 - S_3  +  S_8 - S_5 $ $= \left  -5\frac{1}{3} - 66\frac{2}{3} \right  + \left  -5\frac{1}{3} - 66\frac{2}{3} - 0 \right  \quad \text{K1}$ $= 138\frac{2}{3} m \quad \text{N1}$	3	10

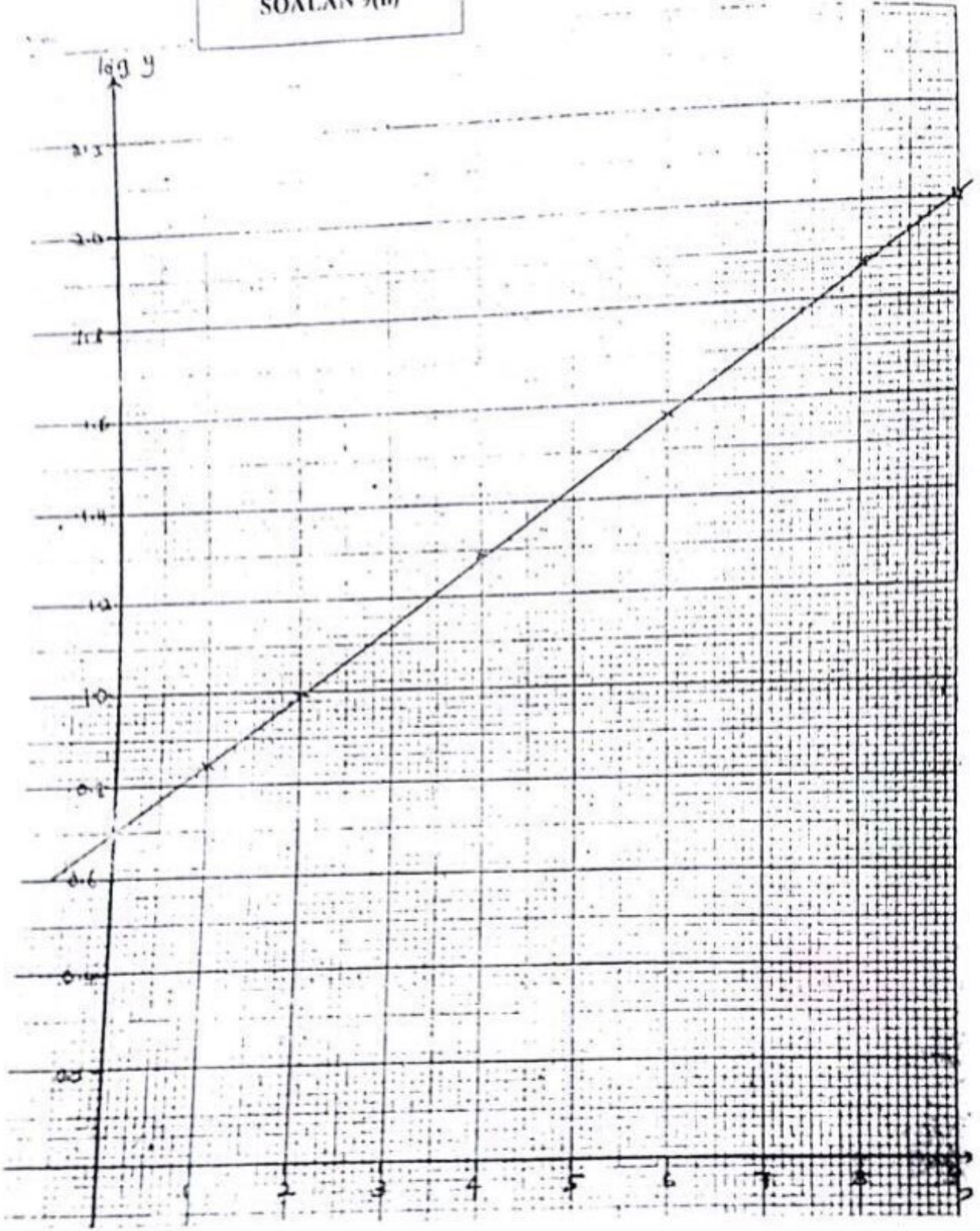


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## MATEMATIK TAMBAHAN ( 2 )

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	<p>(b) <math display="block">j = \frac{\sum (IW)}{\sum W}</math></p> $\frac{120(25) + 125(20) + 140(15) + 110(30) + 125(10)}{100}$ <p style="text-align: right;">K1</p> $= 121.5$ <p style="text-align: right;">N1</p>	2	
	<p>(c) <math>\frac{P_{2018}}{150} \times 100 = 121.5</math>      K1</p> <p>Kos sehari = 182.25      N1</p> <p>Kos Januari = 182.25 x 31 = 5649.75      N1</p>	3	
	<p>(d) <math>\frac{115.2 \times 121.5}{100}</math>      K1</p> <p>139.97      N1</p>	2	10
<b>JUMLAH MARKAH</b>			<b>100</b>

SOALAN 9(b)



SOALAN 14 (b)

