

**SKEMA PERMARKAHAN MATEMATIK TAMBAHAN
MODUL 3 K2 MT JPNK 2015**

Soalan	Penyelesaian	Skima/ Markah	Jumlah Markah
1	$y = 2x - 1$ $9x^2 - 2(2x - 1)(2x - 1) + 9 = 0$ $(x + 1)(x + 7) = 0$ $x = -1, x = -7$ $y = -3, y = -15$	1 1 1 1 1	5
2	(a) $ar^7 = 64ar$ $r = 2$ (b) i) $\frac{4(2^r - 1)}{2 - 1} = 4092$ $p = 10$ ii) $(4)(2)^9$ 2048	1 1 1 1 1 1	6
3	(a) i) $\overline{BD} = -8\underset{\sim}{a} + 16\underset{\sim}{b}$ ii) $\overline{AE} = 8\underset{\sim}{a} + \frac{3}{8}(-8\underset{\sim}{a} + 16\underset{\sim}{b})$ $= 5\underset{\sim}{a} + 6\underset{\sim}{b}$ (b) $\overline{EC} = 3\underset{\sim}{a} - 6\underset{\sim}{b} + \frac{1}{3}\underset{\sim}{a} + 10\underset{\sim}{b}$ $= \frac{10}{3}\underset{\sim}{a} + 4\underset{\sim}{b}$ $= \frac{2}{3}(5\underset{\sim}{a} + 6\underset{\sim}{b})$ $\overline{EC} = \frac{2}{3}\overline{AE}$ $\overline{AE} = \frac{3}{2}\overline{EC}$	1 1 1 1 1 1 1	8

4	(a)	$\left(\frac{\sin x}{\cos x}\right)(2 \sin x \cos x) + (1 - 2 \sin^2 x)$	1	6
		1	1	
	(b)	$\cos 2x = \frac{1}{2}$	1	
		$\cos 2x = \cos 60^\circ$	1	
		$x = 30^\circ, 150^\circ$	1	
		$x = 30^\circ, 150^\circ, 210^\circ, 330^\circ$	1	

5	(a)	$\frac{dy}{dx} = 6x - 6x^2$	1	8
	(b)	$6x - 6x^2 = 0$	1	
		$6x(1 - x) = 0$	1	
		$x = 0, x = 1$	1	
		$(0, 3)$ dan $(1, 4)$	1	
	(c)	$\frac{d^2y}{dx^2} = 6 - 12x$	1	
		$(0, 3)$ titik minimum	1	
		$(1, 4)$ titik maksimum	1	

6	(a)	i) $\sum x = 72$	1	7
		ii) $4^2 = \frac{\sum x^2}{12} - (6)^2$	1	
	$\sum x^2 = 624$	1		
	(b)	$\sigma = \sqrt{\frac{(624 + 640)}{12 + 8} - \left(\frac{72 + 56}{12 + 8}\right)^2}$	1, 1, 1	
		$\sigma = 4.72$	1	

BAHAGIAN B

Soalan	Penyelesaian	Skima/ Markah	Jumlah Markah														
7 (a)	<table border="1"> <tr> <td>x^2</td> <td>4.0</td> <td>9.0</td> <td>16.0</td> <td>25.0</td> <td>36.0</td> <td>49.0</td> </tr> <tr> <td>xy</td> <td>6.70</td> <td>3.69</td> <td>64.32</td> <td>107.50</td> <td>160.32</td> <td>222.60</td> </tr> </table>	x^2	4.0	9.0	16.0	25.0	36.0	49.0	xy	6.70	3.69	64.32	107.50	160.32	222.60		
	x^2	4.0	9.0	16.0	25.0	36.0	49.0										
xy	6.70	3.69	64.32	107.50	160.32	222.60											
(b)	<p>Plot graf x^2 lawan xy dan tanda titik betul</p> <p>6 titik ditanda dengan betul mengikut jadualnya (RUJUK GRAF DILAMPIR)</p> <p>Melukis garis lurus sesuai terbaik (sekurang-kurangnya melalui 3 titik dan imbangan atas / bawah</p>	N1 N1 K1 N1 N1 P1 K1															
(c)	<p>$xy = mx^2 + n$ (implied)</p> <p>(i) Guna kecerunnya = m $m = 4.80$</p> <p>(ii) Guna Pintasanya = $\frac{n}{2}$ $n = -2.4$</p>	N1 K1 N1	10														

8	<p>(a) Gantikan Titik A (2, k) ke dalam persamaan $f(x) = x^2 + 3$ atau Gantikan Titik A (2, k) ke dalam persamaan $2y + 3x = 20$</p> <p>$k = 7$</p> <p>(b) Pintasan $x = \frac{20}{3}$ Kamirkan</p> $\int (x^2 + 3)dx = \left[\frac{x^3}{3} + 3x \right]$ <p style="text-align: center;">= A1</p> <p>Guna limit 0 dan 2 atau cari luas segitiga =A2 Luas $A1 + A2 = 26 + 49$ $= \frac{75}{3} \text{ unit}^2$</p> <p>(c) Kamirkan $\int \pi(x^2 + 3)^2 dx$</p> <p>Guna limit 0 dan 2 ke dalam kamirannya</p> <p>Jawapan = 48.4 π</p>	<p>K1 N1</p> <p>P1</p> <p>K1</p> <p>K1</p> <p>K1 N1</p> <p>K1</p> <p>N1</p>	<p>2</p> <p>5</p> <p>3</p>
9	<p>(a) Kec. AD = Kec BC</p> $= \frac{11-7}{10-2}$ $= \frac{1}{2}$ $y = \frac{1}{2}x + 1$ <p>(b) $m_{DC} \times \frac{1}{2} = -1$ $m_{DC} = -2$ Gantikan (10, 11) , maka $11 = -2(10) + c$ atau setara</p> $y = -2x + 31$ <p>(c) $\frac{1}{2}x + 1 = -2x + 31$</p> <p>D(12 , 7)</p>	<p>K1</p> <p>N1</p> <p>P1</p> <p>K1</p> <p>N1</p> <p>K1</p> <p>N1</p>	<p>3</p> <p>2</p>

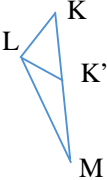
(d)	A(0 , 10)	P1	3
	Luas ABCD = $(\frac{1}{2}) [(0(7) + 2(11) + 10(7) + 12(1)) - (1(2) + 7(10) + 11(12) + 7(0))]$	K1	
	= 50 unit ²	N1	
			10

10 (a)(i)	Guna ${}^{10}C_r (p)^r (q)^{10-r}$ $p + q = 1, p \& q > 0$ $P + q = 1, p \& q > 0$ $P(X = 8) = 0.1757$	K1	5
	(ii) Tulis $P(x \leq 8) = 1 - P(x = 9) - P(x = 10)$ Guna Formula ${}^{10}C_r (p)^r (q)^{10-r}$ $P(x \leq 8) = 0.9140$	N1 P1 K1 N1	
(b) (i)	$Z = \frac{3 - 2.8}{2}$ Jawapan = 0.46017	K1 N1	10
	(ii) 0.859 Cari Z untuk $Q(z) = 0.859$ ----- $Z = 1.253$ $-1.253 = \frac{k - 2.9}{2}$ $K = 2.287$	P1 K1 K1 N1	

11	(a)	<p>Guna nisbah trigonometri</p> <p>-----</p> $\cos \text{COD} = 0.8$ $\theta = 0.8402 \text{ radian}$	K1	2
			N1	
	(b)	<p>Guna $s = 5(0.8402)$</p> <p>Cari panjang $DC = \sqrt{10^2 - 8^2}$</p> <p>Guna perimeter = $OA + APB + BC + CD + DO$</p> <p>-----</p> $5 + 4.201 + 3 + 6 + 10$ <p>Jawapan = 28.2cm</p>	K1	4
		K1		
	(c)	<p>Cari luas segitiga ODC</p> <p>-----</p> $\frac{1}{2}(6)(8)$ <p>Cari luas sektor OAPBM ATAU OEC</p> <p>-----</p> $\frac{1}{2}(5)^2(0.8402) \text{ ATAU } \frac{1}{2}(8)^2(0.2048)$ <p>Luas kawasan berlorek = Cari luas sektor OAPBM - luas segitiga OAB + Luas segitiga OCD - luas sektor OCE</p> <p>-----</p> $\frac{1}{2}(5)^2(1.045) - \frac{1}{2}(5)^2(\sin 48.13^\circ) + \frac{1}{2}(6)(8) - \frac{1}{2}(8)^2(\sin 36^\circ 52')$ <p>Jawapan = 21.2</p>	K1	4
			N1	
			Jumlah	10

BAHAGIAN C

12	(a)	$a = -8\text{ms}^{-2}$	P1	1
	(b)	Kamirkan $a = 2t - 8$ $v = \frac{2t^2}{2} - 8t + c \text{ atau } 2t - 8 = 0$ $t = 4\text{s}$	K1	
	(c)	gantikan $t = 4$, $v = (4)^2 - 8(4) + 12$ Jawapan $v = -4 \text{ms}^{-1}$	K1 N1	
		Selesaikan $t^2 - 8t + 12 = 0$ ----- Iaitu Tunjukkan faktor $(t - 2)(t - 6)$ $t = 2, t = 6$	K1 N1 K1	
	(d)	Kamirkan $t^2 - 8t + 12$ terhadap t Gantikan $t = 2$ atau $t = 5$ ke dalam kamirannya Cari hasil tambah kamiran 0 ke 2 dan mutlak 2 ke 5 Jawapan = $\frac{59}{3} \text{m}$	K1 K1 N1 Jumlah	10

13	(a)	i) $KM^2 = 5^2 + 14.5^2 - 2(5)(14.5)\cos 52^\circ$	1	10	
		$KM = 12.082$	1		
		ii) $\frac{12.082}{\sin 98^\circ} = \frac{3.8}{\sin \angle LMK}$	1		
		$\angle LMK = 18.15^\circ$	1		
		$\angle LKM = 63.85^\circ$	1		
	(b)	i)			1
					1
		ii) $\frac{1}{2}(3.8)(12.082)\sin 63.85^\circ - \frac{1}{2}(3.8)(3.8)\sin 52.3^\circ$	1, 1		
					1
		14.894			

14	(a)	$\frac{(121)\left(\frac{I_{08}}{06}\right)}{100} = 130$	1	10
		107.44	1	
	(b)	i) $x = 140$	1	
		ii) $\left(\frac{P_{06}}{7.50}\right)(100) = 114$	1	
		8.55	1	
	(c)	$\frac{(121)(5) + (114)(2) + (y)(3)}{5 + 2 + 3} = 115.7$	1, 1	
		$y = 108$	1	
	(d)	$\left(\frac{147.40}{P_{04}}\right)(100) = 115.7$	1	
		127.40	1	

15	(a)	$x + y \leq 16$	N1	3	
		$40x + 70y \geq 560$	N1		
		$x \leq 3y$	N1		
	(b)	Melukis betul sekurangnya satu garis lurus di atas	K1		
		Melukis betul semua garis lurus di atas	N1		
		Melorek rantau R	N1		
	(c)	(i) 8 (terima integer sahaja)	N1		
		(ii) Titik (12,4)	P1		
		Gantikan sebarang titik yang ada dalam rantaunya Ke dalam $30x + 25y$ Jawapan = RM460	K1		4
			Jumlah		10