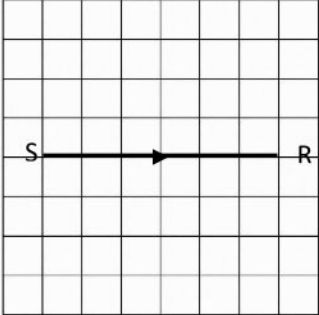


SKEMA PEMARKAHAN PEPERIKSAAN PERCUBAAN SPM (SET 1)

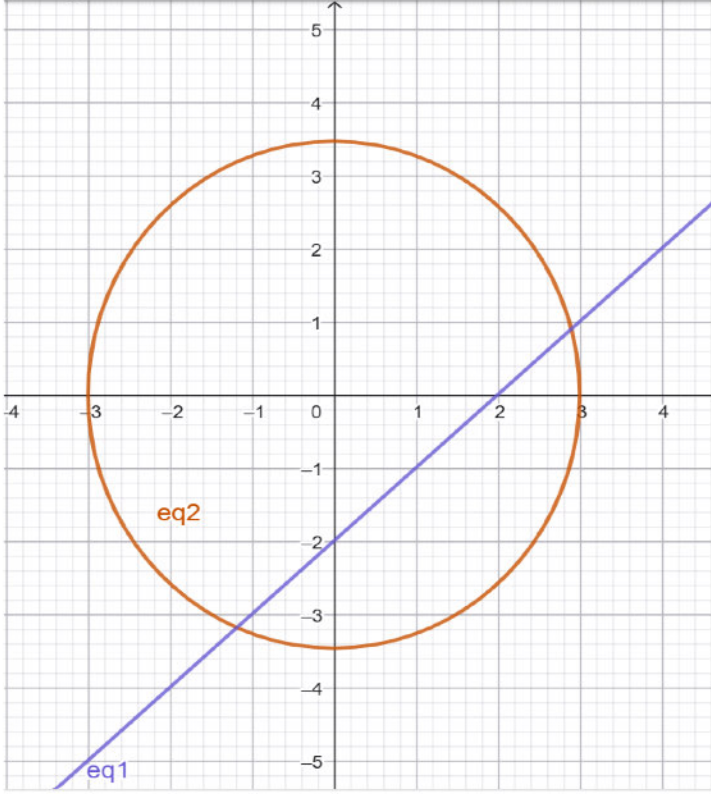
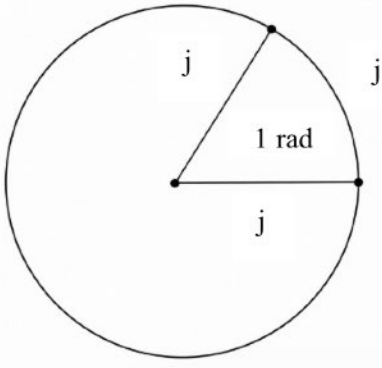
MATEMATIK TAMBAHAN KERTAS 1 2026



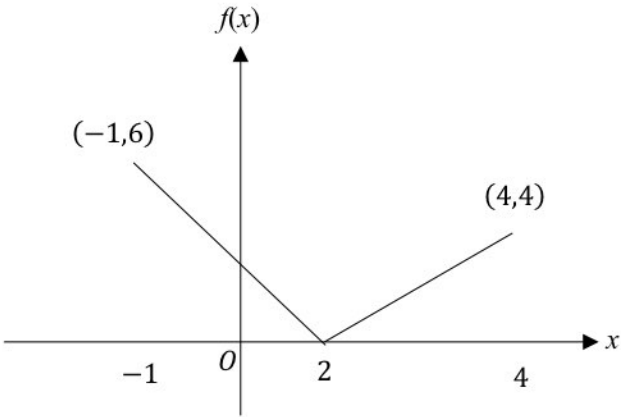
No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
1	(a) $e = \frac{4(4r) + 3(3e)}{7} \text{ atau } f = \frac{4(r) + 3(4f)}{7}$ $r = -\frac{e}{8} \text{ atau } r = -\frac{5f}{4}$ $e = 10f$	K1 K1 N1	3
	(b) $PS = 2PT$ $\sqrt{(x-1)^2 + (y-2)^2} = 2\sqrt{(x-4)^2 + (y+1)^2}$ $x^2 + y^2 - 10x + 4y + 21 = 0$	P1 K1 N1	3
2	(a) Kuantiti vektor  Lukis anak panah –N1 label-N1	N1 N1 N1	3
	(b) $ \overrightarrow{PQ} = \sqrt{2^2 + 5^2}$ $\sqrt{29} @ 5.3851$ Arah timur laut	K1 N1 N1	3
3	(a)(i) $T_1 = p(3)^{1-1} = p \text{ dan } T_2 = p(3)^{2-1} = 3p$ $p + 3p = 24$ $p = 6$	K1 N1	3
	(a)(ii) $T_1 = 6$	N1	

	(b)	$x = \frac{0.54}{1-0.01}$ $x = \frac{6}{11}$	K1 N1	2
4	(a) (i)	$\frac{9-3}{6-3}$ 2	K1 N1	3
	(a)(ii)	$0 = 2X - 3$ $x = \frac{3}{2}$	N1	
	(b)		N1	1
5	(a)	$(a) (2x - 1)(x + 3) = 0$ $p = \frac{1}{2}$ $q = -3$	K1 N1 N1	3
	(b)	$\left(\frac{1}{2} + 2\right) \text{ atau } (3(-3) - 1)$ $HTP = -\frac{15}{2} \text{ atau } HDP = -25$ Pastikan jalan kerja ini ditulis untuk dapat N1 $x^2 - \left(-\frac{15}{2}\right)x + (-25) = 0$ $2x^2 + 15x - 50 = 0 \text{ atau } x^2 + \frac{15}{2}x - 25 = 0$	K1 K1 N1	3
6	(a)	2 ± 3.46	N1 N1	2



	(b)	Dua graf dilukis betul  Graf menunjukkan 2 titik persilangan	K1, K1	
	(c)	$(-1.18, -3.18)$ $(2.9, 0.9)$	N1	3
			N1	1
7	(a)		N1	1
	(b)	$(x + 2) \left(120 \times \frac{\pi}{180} \right)$ $\left(\frac{2x+4}{3} \right) \pi$	K1 N1	2
8	(a)	$\lim_{x \rightarrow 1} \frac{(x-3)(x+3)}{x-1}$ 6	K1 N1	2

	(b)	$y + \delta y = 2(x + \delta x)^2$ $\frac{\delta y}{\delta x} = 4x + 2\delta x$ $\lim_{\delta x \rightarrow 0} 4x + 2(0)$ $4x$	K1 K1 N1	3
9	(a)	$\frac{5}{2} - \int_h^k f(y)dy + \frac{9}{2} = 8$ -1	K1 N1	2
	(b)	$-1 + 3\left(\frac{9}{2}\right)$ $\frac{25}{2}$	K1 N1	2
10	(a)	$3^x (3^1 - 1) = 18$ $3^x = 3^2$ $x = 2$	K1 K1 N1	3
	(b)	$t = \frac{8\sqrt{2} + 10}{\frac{3}{2}\sqrt{2} + 2}$ $\frac{8\sqrt{2} + 10}{\frac{3}{2}\sqrt{2} + 2} \times \frac{\frac{3}{2}\sqrt{2} - 2}{\frac{3}{2}\sqrt{2} - 2}$ $\frac{12(2) - 16\sqrt{2} + 15\sqrt{2} - 20}{\frac{9}{4}(2) - 4}$ $8 - 2\sqrt{2}$	P1 K1 K1 N1	4
11	(a)	Pembolehubah rawak Diskret kerana mempunyai nilai tersendiri.	N1	1
	(b)	$P(X > 15) = 0.13$ atau $P(X < 10) = 0.1$ $\frac{15-\mu}{\sigma} = 1.127$ atau $\frac{10-\mu}{\sigma} = -1.282$ Menyelesaikan persamaan serentak untuk memperoleh μ, σ $\sigma = 2.08$	K1 K1 K1 N1	5

		$\mu = 12.66$	N1	
12	(a)(i)	$(6 - 1)! = 5$ 120	N1	
	(ii)	$\frac{7!}{3!2!}$ 420	K1 N1	3
	(b)(i)	${}^4C_4 = 1$	N1	
	(ii)	$({}^6C_2 \times {}^4C_2)$ atau $({}^6C_3 \times {}^4C_1)$ atau 6C_4 90+80 + 15 185	K1 N1	3
13	(a)(i)	$2x - 4 < -10$ atau $2x - 4 > 10$ $x < -3$ $x > 7$	K1 N1 N1	3
	(a)(ii)	$f(-1) = 2(-1) - 4 = 6$ $f(4) = 2(4) - 4 = 4$ Koordinat $(-1,6)$ dan $(4,4)$ ditulis pada graf Paksi betul dan bentuk graf betul  Kodomain: $0 \leq f(x) \leq 6$	K1 N1 N1	3
	(b)	$f^2(x) = x - 6$ $f^3(x) = x - 9$ $f^4(x) = x - 12$	K1	2

		$f^n(x) = x - 3n$	N1	
14	(a)	$(-4\underline{i} + 4\underline{j})t + (50\underline{i} + 20\underline{j})$ $(50 - 4t)\underline{i} + (20 + 4t)\underline{j}$	K1 N1	2
	(b)	$\overrightarrow{OA} = \overrightarrow{OB}$ $t(6\underline{i} + 8\underline{j}) = (50 - 4t)\underline{i} + (20 + 4t)\underline{j}$ $6t = 50 - 4t$ $8t = 20 + 4t$ $t = 5$ Kapal A akan memintas kapal B selepas 5 jam pelayaran.	K1 K1 K1 K1 N1 N1	6
15	(a)	$\cos(30^\circ + 45^\circ)$ $\left(\frac{\sqrt{3}}{2}\right)\left(\frac{1}{\sqrt{2}}\right) - \left(\frac{1}{2}\right)\left(\frac{1}{\sqrt{2}}\right)$ $\frac{\sqrt{3}-1}{2\sqrt{2}} \times \frac{2\sqrt{2}}{2\sqrt{2}}$ $\frac{\sqrt{6}+\sqrt{2}}{4}$	K1 K1 K1 N1	4
	(b)	$\tan A = \frac{3}{4}$ $\tan B = \frac{12}{5}$ $\frac{\left(\frac{3}{4}\right) - \left(\frac{12}{5}\right)}{1 + \left(\frac{3}{4}\right)\left(\frac{12}{5}\right)}$ $-\frac{33}{56}$	K1 K1 K1 N1	4



SERTAI TELEGRAM @exercise_students

KERTAS 2

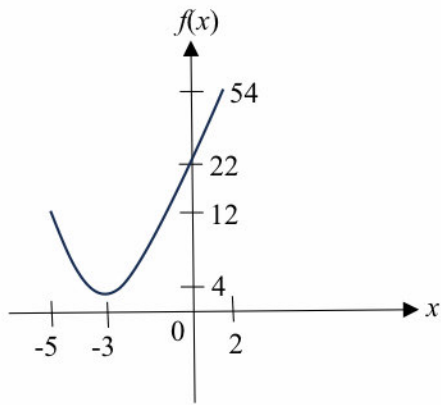


MATEMATIK TAMBAHAN

KERTAS 2

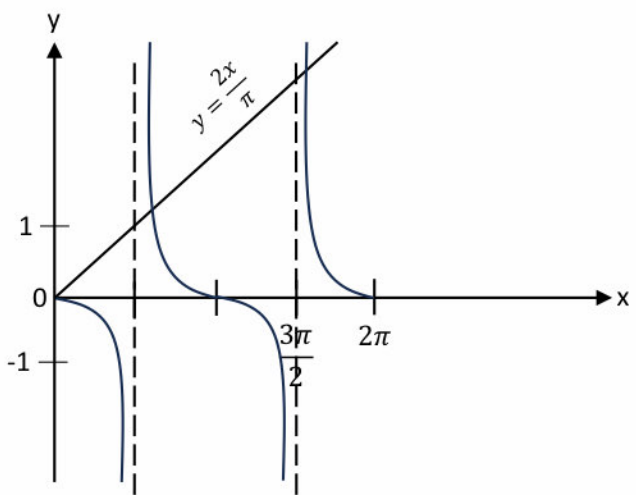
SKEMA PEMARKAHAN

SET 1

No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
1	$p + q + r = 2100$ $3p + 4q + 5r = 8600$ $p + 1.50q + 1.50r = 2875$ Hapus anu pertama dengan penggantian atau penghapusan $q + 2r = 2300$ @ $p - 2r = -200$ @ $2p + q = 1900$ @ setara Hapus anu kedua dengan penggantian atau penghapusan $1.50r = 1125$ @ $0.5p = 275$ @ $-5q = -4000$ $p = 550$ @ $q = 800$ @ $r = 750$ $p = 550$ DAN $q = 800$ @ $p = 550$ DAN $r = 750$ @ $q = 800$ DAN $r = 750$	P1 P1 P1 K1 K1 N1 N1	 7
2	(a) $f(x) = 2 \left[x^2 + 6x + \left(\frac{6}{2}\right)^2 - \left(\frac{6}{2}\right)^2 + 11 \right]$ $f(x) = 2(x + 3)^2 + 4$ $x = -3$ nilai minimum = 4 (b) 	K1 N1 N1 N1 P1 N1	 6





No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
5			
(a)	Guna $\sec^2 \theta = 1 + \tan^2 \theta$ $2 \sin \theta \cos \theta$	P1 N1	2
(b)(i)	 Bentuk graf tangen Satu kitaran Graf negatif	P1 P1 P1	3
(ii)	$y = \frac{2x}{\pi}$ Lakar dan label garis lurus $y = \frac{2x}{\pi}$ Bilangan penyelesaian = 3	K1 N1 N1	3 3 8

No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
6(a)	$3.77p = 6p\theta$ $\theta = 0.6283$ $\frac{1}{2}(6p)^2(0.6283) = 45.24$ $p = 2.000$	K1 N1 K1 N1	4
(b)	$n = \frac{2(3.142)}{0.6283} @ n = \frac{2(3.142)(6)(2)}{(3.77)(2)}$ $n = 10$ 80 @ 26 (dilihat) $\frac{80}{100} \times 130$ ATAU $130 - 26 = 104$ RM 104.00	K1 N1 P1 K1 N1	5 9
7			
(a)	-345	N1	1
(b)	$T_1 = -48$ $T_2 = S_2 - S_1 = \frac{3(2)(2 - 33)}{2} - (-48)$ $d = 3$	N1 K1 N1	3
(c)	$-48 + (n - 1)(3) > 0$ $n = 18$	K1 N1	2 6

No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
8			
(a)	Beza $y = 3x^3 + 2$ terhadap x dan Ganti $x = 1$ ke dalam $\frac{dy}{dx}$ $\frac{dy}{dx} = 9(1)^2$ Guna $m_1 m_2 = -1$ $9(m_2) = -1$ $m = -\frac{1}{9}$ $y - 5 = -\frac{1}{9}(x - 1) @ [y = -\frac{1}{9}x + c], c = \frac{46}{9}$ $y = -\frac{1}{9}x + \frac{46}{9} @$ setara	K1	4
		K1	
		K1	
		N1	
(b)	$x = \frac{4}{9}$ dilihat Kamir $3x^3 + 2$ dan guna had $\int_0^1$ ke dalam kamiran $3x^3 + 2$ $\left[\left(\frac{3(1)^4}{4} + 2(1) \right) - \left(\frac{3(0)^4}{4} + 2(0) \right) \right]$ ATAU Mencari luas segitiga $\frac{1}{2}(5)(\frac{5}{9}) @ \frac{1}{2}(4)(\frac{4}{9})$ $\left[\left(\frac{3(1)^4}{4} + 2(1) \right) - \left(\frac{3(0)^4}{4} + 2(0) \right) \right] - \frac{25}{18} + \frac{16}{18}$ $\frac{9}{4} \text{ unit}^2$	K1	4
		K1	
		N1	
(c)	Kamir $\frac{\pi}{2} \int (3x^3 + 2)^2 dx$ dan guna had $\int_0^1$ $\frac{\pi}{2} \left[\left(\frac{9(1)^7}{7} + 3(1)^4 + 4(1) \right) - \left(\frac{9(0)^7}{7} + 3(0)^4 + 4(0) \right) \right]$ $isi \text{ padu} = \frac{29}{4} \pi \text{ unit}^3$	K1	2
		N1	
			10



No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
9	$29.047 = \sqrt{1125(q)}$	K1	
(a)(i)	$q = 0.7500$ 75%	N1 N1	
(ii)	$1 - P(X = 0) - P(X = 1) @ P(X = 2) + P(X = 3) + \dots + P(X = 10)$ $1 - {}^{10}C_0(0.2500)^0(0.7500)^{10} - {}^{10}C_1(0.2500)^1(0.7500)^9$ 0.7560	K1 N1	
(b)(i)	Tulis $P\left(z > \frac{38-40}{5}\right)$ & $1 - 0.3446$ ATAU Tulis $1 - P\left(z \leq \frac{38-40}{5}\right)$ 0.6554	K1 N1	5
(ii)	Tulis $P\left(z < \frac{n-40}{5}\right) = 0.2$ & $z = 0.842 @ z = -0.842$ $-0.842 = \frac{n-40}{5}$ $n = 35.79$ & maka $n = 35$	K1 K1 N1	5 10
			\

No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
10			
(a)(i)	Ganti $S(k, 5)$ ke dalam persamaan $y = x - 2$ @ setara (guna kecerunan) $5 = k - 2$ @ $1 = \frac{5-0}{k-2}$ $k = 7$	K1 N1	2
(ii)	Guna $m_1 \times m_2 = -1$ $m_2 = -1$ $y - 5 = -1(x - 7)$ @ $[y = -x + c], c = 12$ $y = -x + 12$	K1 K1 N1	3
(b)(i)	$R(0,2)$ dilihat $\frac{1}{2} [(0)(5) + (7)(0) + (2)(2)] - [(2)(7) + (5)(2) + (0)(0)] $ 4×10 dan 40 unit^2	P1 K1 N1	3
(ii)	$\sqrt{(x - 7)^2 + (y - 5)^2} = 5$ $x^2 + y^2 - 14x - 10y + 49 = 0$	K1 N1	2
			10

No.	Skema Pemarkahan						Sub Markah	Jumlah Markah	
11									
(a)	$\log_{10} y$	0.6405	0.8814	1.002	1.243	1.363	1.477	N1	1
(b)	Graf garis lurus $\log_{10}y$ melawan x dilukis -Paksi-paksi betul dan skala seragam dari titik pertama hingga titik terakhir -Sekurang-kurangannya nya satu *titik diplot betul 6 *titik diplot dengan betul Garis lurus penyuaian terbaik -Sekurang-kurangannya 5 *titik diplot						K1 N1 N1	3	
(c)(i)	$\log_{10}y = (k \log_{10}a)x + \log_{10}h$ Guna* $c = \log_{10}h$ $h = 2.512$ Guna* $m = k \log_{10}2$ $k = 0.3986$						P1 K1 N1 K1 N1	5	
(ii)	$y = 1.18$						N1	1	
								10	



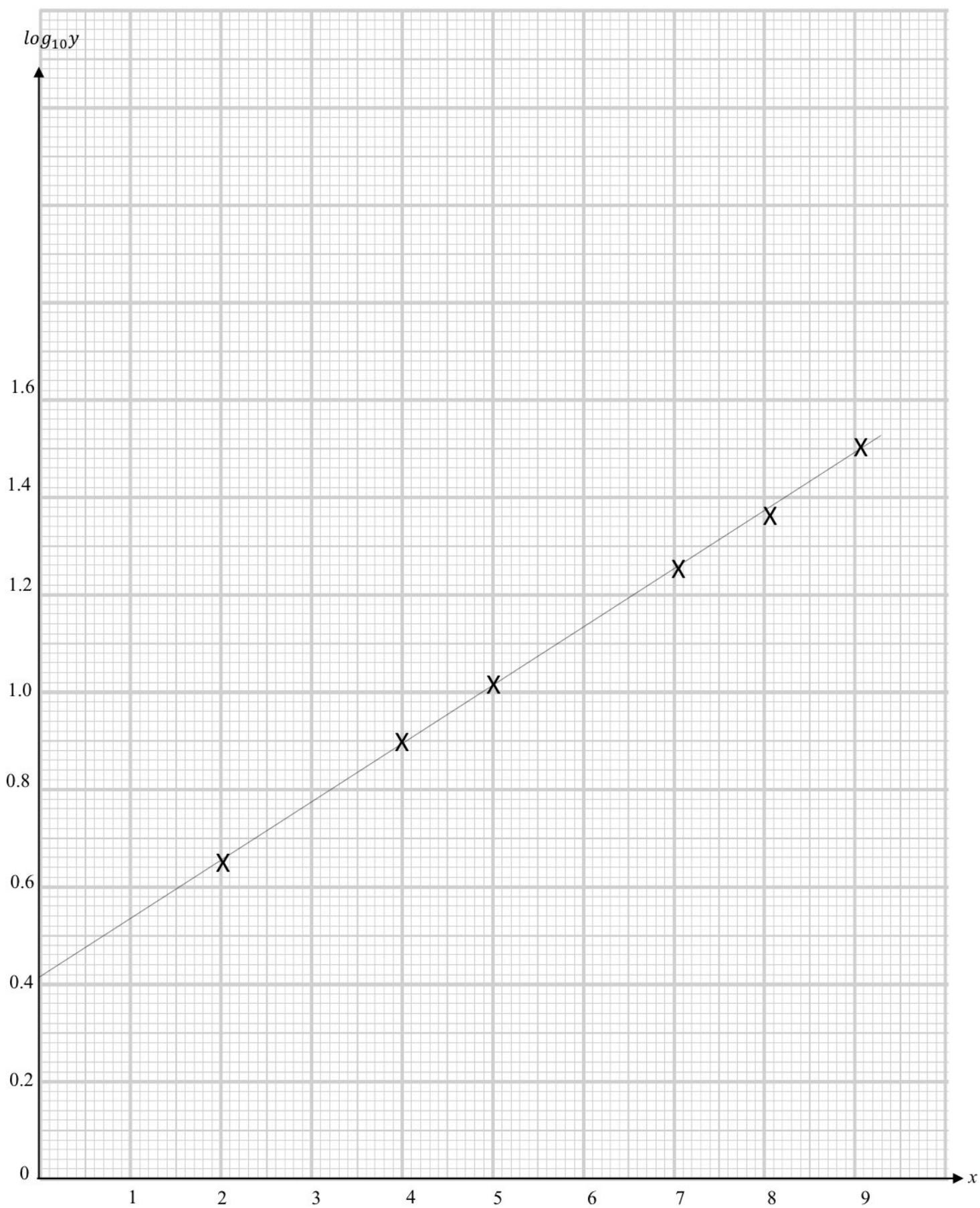
No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
13(a)	$I_{Santan} = 109$ $\frac{3.00}{y} \times 100 = 109 \quad @ \quad \frac{6.00}{4.80} \times 100 = x$ $x = 125$ $y = 2.75$	P1 K1 N1 N1	4
(b)	$\frac{125(150) + 109(150) + 105(100) + 120(m)}{150 + 150 + 100 + m} = 116$ $m = 200 \text{ g}$	K1 N1	2
(c)	$I_{26/24} = \frac{116}{100} \times \frac{116}{100} \times 100$ $I_{26/24} = 134.56$ $\frac{H_{26}}{11.00} \times 100 = 134.56$ $H_{23} = 14.80$ $\text{Harga Jualan} = \frac{125}{100} \times 14.80 \quad @ \text{ setara}$ 18.50	K1 K1 K1 N1	4
			10



No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
14(a)	$30x + 25y \leq 3000$ $x > 20$ $y \geq x + 10$	N1 N1 N1	3
(b)	Lukis dengan betul sekurang²nya satu garis lurus dari *ketaksamaan yang melibatkan x dan y. Lukis dengan betul semua garis lurus dari *ketaksamaan yang melibatkan x dan y [Nota : Terima garis putus² dan garis padu] Rantau R dilabel dengan betul.	K1 K1 N1	3
(c)	$k = 30x + 25y$ $(22, 32)$ Lukis $k = 30x + 25y$ dan Ganti mana-mana titik dalam rantau ke dalam $k = 30x + 25y$ $30*(22) + 25*(32)$ RM1460.00	N1 N1 K1 N1	4
			10

No.	Skema Pemarkahan	Sub Markah	Jumlah Markah
15(a)			
i)	$a = -2ms^{-2}$	N1	1
ii)	$8 - 2t = 0$ $t = 4$	K1 N1	2
iii)	$-t^2 + 8t = -20$ $(t - 10)(t + 2) = 0$ $t = 10$ $v = 8 - 2(10) = -12ms^{-1}$	K1 K1 K1 N1	4
(b)	$s_{OQ} = 8t - t^2$ <i>pada</i> $t = 4, s_{OQ} = 8(4) - (4)^2$ $= 16$ <i>beza OP dan OQ</i> $= 20 - 16$ $= 4m$	K1 K1 N1	3
			10

Soalan 11



Soalan 14 (b)

