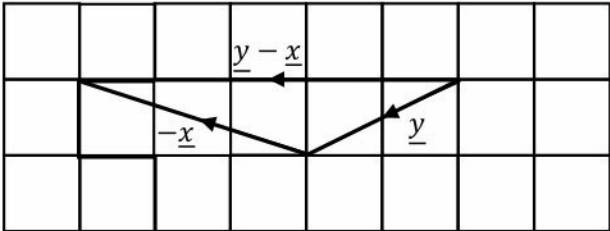
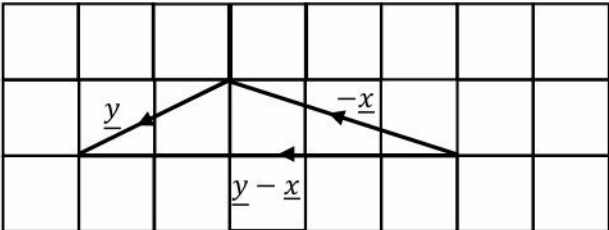
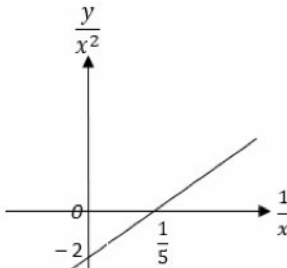


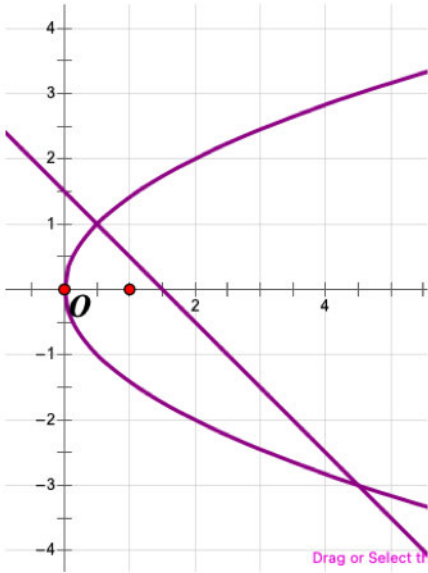
PERATURAN PEMARKAHAN
PEPERIKSAAN PERCUBAAN SPM 2026
MATEMATIK TAMBAHAN KERTAS 1 (SET B)

Soalan	Penyelesaian dan jawapan	Pemarkahan
1	(a) $\left(\frac{-3n + 2m}{m + n}, \frac{4n + 9m}{m + n}\right) = (0, Y)$ $\frac{-3n+2m}{m+n} = 0$ $\frac{m}{n} = \frac{3}{2}$ (b) $\frac{PT}{PS} = \frac{1}{2} \text{ , } 2PT = PS$ $2\sqrt{(x - (-3))^2 + (y - 4)^2} @ \sqrt{(x - 4)^2 + (y - 3)^2}$ $2\sqrt{(x - (-3))^2 + (y - 4)^2} = \sqrt{(x - 4)^2 + (y - 3)^2}$ $4(x^2 + 6x + 9 + y^2 - 8y + 16) = x^2 - 8x + 16 + y^2 - 6y + 9$ $3x^2 + 3y^2 + 32x - 26y + 75 = 0$	K1 N1 K1 K1 N1 [5]
2	(a) Kuantiti vektor kerana mempunyai magnitud dan arah (b) Melukis vektor-vektor $\underline{y}$, $-\underline{x}$ dan $\underline{y} - \underline{x}$ dengan setiap vektor dilabel, simbol vektor dan arah anak panah vektor Arah vektor ke barat/ kiri *Terima: Vektor $\underline{y}$ dan $-\underline{x}$ dilukis garisan putus-putus dan garis lurus untuk paduan vektor $\underline{y} - \underline{x}$  ATAU 	P1 P2 N1 Beri P1: Melukis cantuman vektor-vektor $\underline{y}$ dan $-\underline{x}$ dengan betul, berlabel dan simbol tapi tiada paduan vektor atau



		hanya melukis paduan vektor akhir $\underline{y} - \underline{x}$ dengan betul lengkap berlabel, simbol dan arah vektor tapi tidak kelihatan cantuman vektor-vektor $\underline{y}$ dan $-\underline{x}$ atau melukis vektor-vektor $\underline{y}$ dan $-\underline{x}$ dan paduan vektor $\underline{y} - \underline{x}$ dengan arah vektor yang betul tapi tiada label dan tanpa simbol vektor Beri P0: Tidak melukis arah vektor atau salah arah (c) $\sqrt{(4)^2 + (-8)^2}$ *Terima: $\sqrt{4^2 + (-8)^2}$ Beri K0N0: -8^2 [tiada sepasang tanda kurungan] $\frac{\sqrt{5}\underline{i}}{5} - \frac{2\sqrt{5}\underline{j}}{5}$	K1	
			N1	[6]
3	(a)	$\frac{3n-3}{n+1} = \frac{n+1}{2n-7}$ $(5n-4)(n-5) = 0$ DAN $n = \frac{4}{5}, n = 5$ [mesti tunjuk pempfaktoran & 2 nilai n] $n = 5$ $T_1 = a = 3 \text{ cm}$	K1	
			N1	
			N1	
	(b)	$a = 0.048 \quad @ \quad r = \frac{0.00048}{0.048} \quad @ \quad S_{\infty} = \frac{0.048}{1-0.01}$ $1.2 + \frac{0.048}{1-0.01}$ $\frac{206}{165}$	K1	
			N1	[5]
4	(a)	$\frac{y}{x} = -2x + 10$ Kecerunan = - 2 Pintasan -X = 5	P1	
			N1	
			N1	
	(b)		P1	
				[4]



5	$\alpha + \beta = -9$ atau $\alpha\beta = 2k$ Hasil tambah: $(2 + \alpha - \beta) + (2 - \alpha + \beta)$ $= 2 + \alpha - \beta + 2 - \alpha + \beta$ $= 4$ Hasil darab: $(2 + \alpha - \beta)(2 - \alpha + \beta)$ $= 4 - 2\alpha + 2\beta + 2\alpha - \alpha^2 + \alpha\beta - 2\beta + \alpha\beta - \beta^2$ $= 4 - (\alpha^2 + \beta^2) + 2(2k)$ $= 4 - [(\alpha + \beta)^2 - 2\alpha\beta] + 4k$ $= 4 - [(-9)^2 - 2(2k)] + 4k$ $= 8k - 77$ Persamaan baru: $x^2 - 4x + 8k - 77 = 0$	K1 K1 K1 K1 K1 N1																					
[6]																							
6	(a) <table border="1"><thead><tr><th>x</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr></thead><tbody><tr><td>$2y + 2x = +3$</td><td>3.5</td><td>2.5</td><td>1.5</td><td>0.5</td><td>-0.5</td><td>-1.5</td></tr><tr><td>$y^2 - 2x = 0$</td><td>0</td><td>± 1.41</td><td>± 2</td><td>± 2.45</td><td>± 2.83</td><td>± 3.16</td></tr></tbody></table> (b)  Lukis graf garis. Plot sekurang-kurangnya 3 mana-mana titik dengan betul. Graf lengkung melalui semua titik dengan betul. Beri N0: Tidak melabel asalan dengan 0 (0.5, 1) dan (4.5, -3)	x	0	1	2	3	4	5	$2y + 2x = +3$	3.5	2.5	1.5	0.5	-0.5	-1.5	$y^2 - 2x = 0$	0	± 1.41	± 2	± 2.45	± 2.83	± 3.16	N1 N1 K1 N1 N1 N1
x	0	1	2	3	4	5																	
$2y + 2x = +3$	3.5	2.5	1.5	0.5	-0.5	-1.5																	
$y^2 - 2x = 0$	0	± 1.41	± 2	± 2.45	± 2.83	± 3.16																	
[6]																							
7	(a) - Lukiskan satu lengkok AB yang panjangnya sama dengan jejari bulatan dalam rajah yang diberi. - Labelkan sudut pusat $\angle AOB$. - Nyatakan nilai sudut $\angle AOB$ dalam radian. Panjang lengkok = Jejari $s = r$ Menggunakan rumus: $s = r\theta$ $r = r\theta$ $\theta = 1$ Sudut $\angle AOB = 1$ rad	N1																					

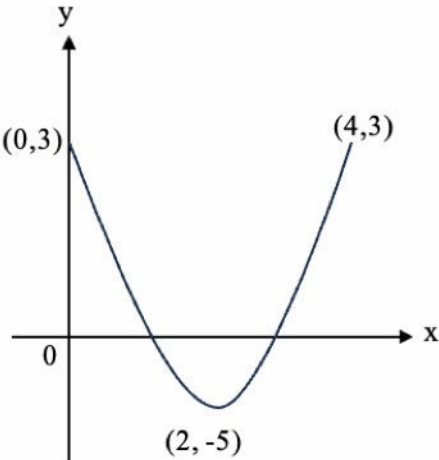
	(b)(i) $AOB = 0.53 \text{ rad}$ $= 30.36^\circ$ $\cos 30.36^\circ = \frac{12}{OA}$ $OA = 13.907 \text{ cm}$ Jejari = 13.907 (ii) $s = r\theta$ $= 13.907 \times 0.53$ $= 7.3707$	K1 N1 K1 N1 [5]
8	$y = 5x^2 + 3x \dots\dots\dots(1)$ $y + \delta y = 5(x + \delta x)^2 + 3(x + \delta x)$ $y + \delta y = 5x^2 + 10x\delta x + 5(\delta x)^2 + 3x + 3\delta x\dots\dots(2)$ $(2) - (1) \quad \delta y = 10x\delta x + 5(\delta x)^2 + 3\delta x$ $\frac{\delta y}{\delta x} = 10x + 5\delta x + 3$ $\frac{dy}{dx} = \lim_{\delta x \rightarrow 0} 10x + 5\delta x + 3$ $\frac{dy}{dx} = 10x + 5(0) + 3$ $\frac{dy}{dx} = 10x + 3$	K1 K1 K1 N1 [4]
9	(a) $3 + \left \int_h^k f(y) dy \right + 3 = 9$ $\int_h^k f(y) dy = -3$ $\int_0^k f(y) dy = 0$ (b) $-3 + \frac{4}{3}(3)$ 1	K1 N1 K1 N1 [4]

10	(a)	$2^x(2) - 2^x\left(\frac{1}{2}\right) = k(2^x\left(\frac{1}{2}\right))$	K1	[7]
		$2^x\left(\frac{3}{2}\right) = \frac{k}{2}(2^x)$	K1	
		$k = 3$	N1	
	(b)	$2\pi\left(\frac{3}{\sqrt{6}} + \sqrt{3}\right) \times t = \pi(20\sqrt{2} + 10)$	K1	
		$t = \frac{10\sqrt{12} + 5\sqrt{6}}{3 + 3\sqrt{2}} \times \frac{3 - 3\sqrt{2}}{3 - 3\sqrt{2}}$ $= \frac{30\sqrt{12} - 30\sqrt{24} + 15\sqrt{6} - 15\sqrt{12}}{9 - 18}$ $= \frac{30\sqrt{3} - 45\sqrt{6}}{-9}$ $= -\frac{10}{3}\sqrt{3} + 5\sqrt{6}$	N1	
11	(a)	Diskret	P1	[6]
	(b)	$P\left(Z > \frac{50.1 - \mu}{\sigma}\right) = 0.025$ atau $P\left(Z > \frac{34.3 - \mu}{\sigma}\right) = 0.8849$	K1	
		Nampak 1.96 atau -1.2	K1	
		Selesaikan persamaan serentak	K1	
		$15.8 = 3.16\sigma$ $\sigma = 5$ $\mu = 40.3$	N1 N1	
12	(a)(i)	720	N1	[6]
	(ii)	$\frac{4!}{2!} \times \frac{6!}{2! \times 2!}$	K1	
		2160	N1	
	(b)(i)	10	N1	
	(ii)	$({}^6C_3 \times {}^5C_4) @ ({}^6C_2 \times {}^5C_5)$ 115	K1 N1	

13 (a)	Vshape Domain $-1 \leq x \leq 5$ Koordinat $(-1, 6), (5, 6), (2, 0), (0, 4)$ (b) $fg(x) = f[g(x)]$ $2(x + 1) - 4$ $2x - 2$ $fg(2) = 2$ (c) $2x - 4 > 3$ $2x - 4 > 3$ atau $2x - 4 < -3$ $x > \frac{7}{2}$ atau $x < \frac{1}{2}$	P1 P1 N1 K1 N1 N1 K1 N1 [8]
14 (a)	$\overrightarrow{OQ} = \overrightarrow{OB} + t(\mathbf{i} + \frac{2}{3}\mathbf{j})$ $\overrightarrow{OQ} = (14\mathbf{i} + 14\mathbf{j}) + t(\mathbf{i} + \frac{2}{3}\mathbf{j})$ $(14 + t)\mathbf{i} + (14 + \frac{2}{3}t)\mathbf{j}$ (b) $(-4 + 3t)\mathbf{i} + (2 + 2t)\mathbf{j} = (14 + t)\mathbf{i} + (14 + \frac{2}{3}t)\mathbf{j}$ $-4 + 3t = 14 + t$ atau $2 + 2t = 14 + \frac{2}{3}t$ $t = 9$ atau Robot bertemu selepas 9 minit. Berik K0N0: Nampak $\mathbf{i}$ dan $\mathbf{j}$ (c) $(-4 + 3(9), 2 + 2(9))$ $(23, 20)$	P1 K1 N1 K1 K1 N1 K1 N1 [8]

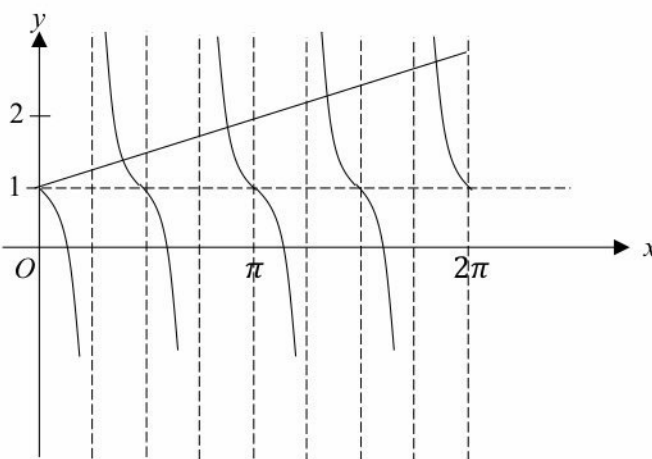
15	(a)	$\cos 75^\circ$ $= \cos(45^\circ + 30^\circ)$ $= \cos 45^\circ \cos 30^\circ - \sin 45^\circ \sin 30^\circ$ $= \left(\frac{1}{\sqrt{2}}\right)\left(\frac{\sqrt{3}}{2}\right) - \left(\frac{1}{\sqrt{2}}\right)\left(\frac{1}{2}\right)$ $= \frac{\sqrt{3} - 1}{2\sqrt{2}} \left(\frac{\sqrt{2}}{\sqrt{2}}\right)$ $= \frac{\sqrt{6} - \sqrt{2}}{4}$	P1
			K1
			K1
			N1
	(b)(i)	$\left(\frac{5}{13}\right)\left(\frac{15}{17}\right) + \left(\frac{12}{13}\right)\left(-\frac{8}{17}\right)$ $= -\frac{21}{221}$	K1
			N1
	(ii)	$\frac{\left(\frac{5}{12}\right) - \left(-\frac{8}{15}\right)}{1 + \left(\frac{5}{12}\right)\left(-\frac{8}{15}\right)}$ $= \frac{171}{140}$	K1
			N1
			[8]

PERATURAN PEMARKAHAN
PEPERIKSAAN PERCUBAAN SPM 2026
MATEMATIK TAMBAHAN KERTAS 2 (SET B)

Soalan			Penyelesaian dan Jawapan	Pemarkahan	Jumlah
1			$x + y + z = 50$ $20x + 50y + 30z = 1500$ $x = z$ Menerbitkan 1 atau 2 persamaan dengan BETUL Menerbitkan 3 persamaan dengan BETUL Hapus anu pertama secara penghapusan @ penggantian Hapus anu kedua secara penghapusan @ penggantian Ayam = 20 Arnab = 10 Itik = 20	 P1 P1 K1 K1 N1 N1 N1	7
2	(a)		$2 \left[x^2 - 4x + \left(\frac{-4}{2}\right)^2 - \left(\frac{-4}{2}\right)^2 \right] + 3$ $f(x) = 2(x - 2)^2 - 5$	 K1 N1	
	(b)	(i)	(2, -5) dan $x = 2$	N1 N1	
		(ii)	 Lakarkan dalam domain $0 \leq x \leq 4$ Kelihatan titik-titik (0,3), (4,3) dan titik minimum (2,-5)	 P1 N1	



3	(a)	(i)	$\overrightarrow{PR} = \overrightarrow{PO} + \overrightarrow{OR}$ ATAU $\overrightarrow{OQ} = \overrightarrow{OP} + \overrightarrow{PQ}$ $\overrightarrow{PR} = 9\underline{x} - 7\underline{y}$	K1 N1	8
		(ii)	$\overrightarrow{OQ} = 7\underline{x} + 3\underline{y}$	N1	
	(b)		$\overrightarrow{OS} = h \overrightarrow{OQ} = 3h\underline{x} + 7h\underline{y}$ dan $\overrightarrow{PS} = h \overrightarrow{PR} = 9k\underline{x} - 7k\underline{y}$ $\overrightarrow{OS} = \overrightarrow{OP} + \overrightarrow{PS}$ $3h\underline{x} + 7h\underline{y} = 9k\underline{x} + (7 - 7k)\underline{y}$ bandingkan $3h = 9k$ atau $7h = 7 - 7k$ $h = 3k$ $k = \frac{3}{4}$	K1 K1 K1 N1 N1	
4	(a)		$j^2 + \left(\frac{t}{2}\right)^2 = 8^2$ $j^2 = 64 - \frac{t^2}{4}$ $l = \pi \left(64 - \frac{t^2}{4}\right) t$ $l = \pi \left(64t - \frac{t^3}{4}\right)$	K1 N1	6
	(b)		$\frac{dl}{dt} = \pi \left(64 - \frac{3t^2}{4}\right)$ $\pi \left(64 - \frac{3t^2}{4}\right) = 0$ $\frac{3t^2}{4} = 64$ $t = 9.238$ $\frac{d^2l}{dt^2} = \pi \left(0 - \frac{3t}{2}\right)$ $-13 \cdot 857\pi < 0$ DAN isipadu silinder maksimum apabila $t = 9.238$	K1 N1 K1 (pembezaan peringkat kedua) N1	

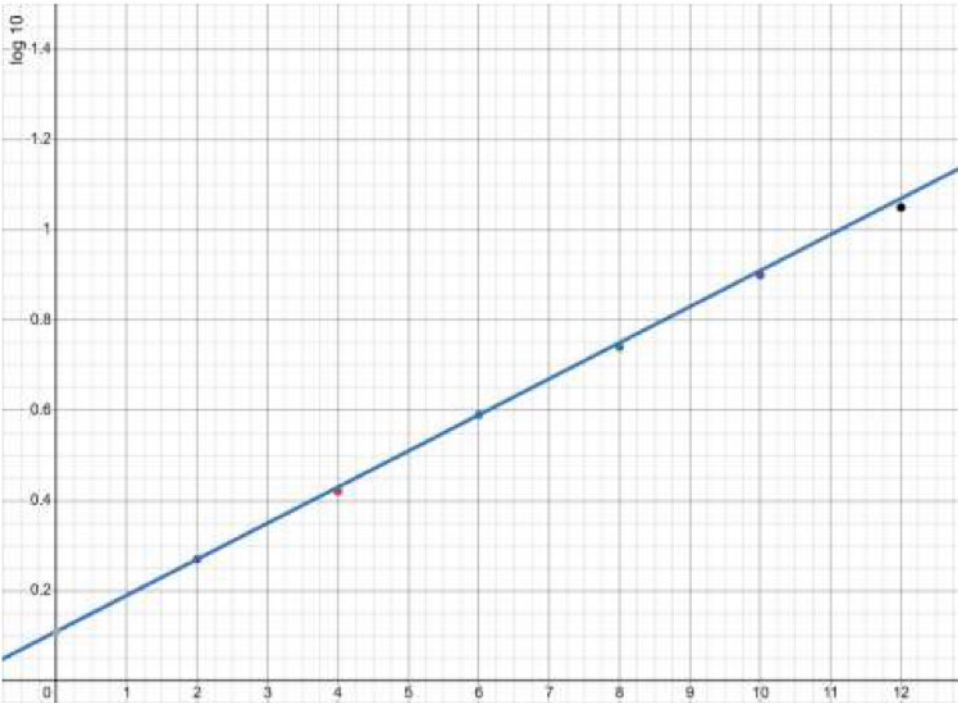
5	(a)	Gantikan $1 - \tan^2 x = \sec^2 x$ $\frac{1 - \tan^2 x}{(\sec^2 x)}$ $\frac{1}{\sec^2 x} - \frac{\tan^2 x}{\sec^2 x}$ $\cos^2 x - \sin^2 x$	K1	8
	(b) (i)	 Bentuk graf tangen [paksi mesti lurus, sekurang-kurangnya 1 kitaran] 2 kitaran [label asalan dan paksi dengan betul] Anjakan 1 unit ke atas $y = 1 + \frac{x}{\pi}$ Lakar garis lurus $y = 1 + \frac{x}{\pi}$ pada graf	P1 P1 P1 N1 K1	
	(ii)	5 bilangan penyelesaian	N1	

6	(a)	(i)	$jejari = \frac{70}{2}$ DAN $\theta = 137.5 \times \frac{\pi}{180}$ $j = 35, \theta = 2.40 \text{ rad}$ $s = (35)(2.4)$ 83.99 m	P1 K1 N1	9
		(ii)	$A = \frac{1}{2}(35)^2(2.40)$ 1470 m ²	K1 N1	
	(b)		Kos pagar, 83.99 (120) RM10 079 Caj pemasangan, $\frac{12}{100} \times 10079$ RM1 209.48 Jumlah kos, 10079 + 1209.48 RM11 288.48	K1 K1 N1	
		(c)	Bajet yang diperuntukkan: RM 12000 > RM 11288.48 Maka, bajet mencukupi kerana kos pembinaan adalah lebih rendah daripada bajet yang diperuntukkan.	N1	
	(c)				
7	(a)		$a = -1$ $S_2 = 2^2 - 2(2) \quad @ \quad T_2 = 0 - (-1)$ $d = 1 - (-1)$ $d = 2$	N1 K1 N1	6
		(b)	$S_3 = 3^2 - 2(3) \quad @ \quad S_9 = (9)^2 - 2(9)$ $S_9 - S_3$ 63 - 3 60	K1 K1 N1	
	(b)				

8	(a)	$m = \frac{dy}{dx} = 2x$ dan ganti nilai $x = 1$ $m = 2(1)$ $y - 4 = 2(x - 1)$ $y = 2x + 2$	K1 K1 N1	10
	(b)	Luas lengkung, $A_1 = \int_0^1 (x^2 + 3)dx = \left[\frac{x^3}{3} + 3x \right]_0^1$ $\left[\frac{(1)^3}{3} + 3(1) \right] - \left[\frac{0^3}{3} + 3(0) \right]$ Luas trapezium, $A_2 = \frac{1}{2}(2 + 4)(1)$ Luas rantau berlorek, $A_1 - A_2$ atau setara $\left[\frac{(1)^3}{3} + 3(1) \right] - \left[\frac{0^3}{3} + 3(0) \right] - \frac{1}{2}(2 + 4)(1)$ $\frac{1}{3}$	K1 (kamir & ganti had) K1 K1 N1	
	(c)	$\frac{1}{2}\pi \left[\frac{y^2}{2} - 3y \right]_3^5$ $\frac{1}{2}\pi \left[\frac{5^2}{2} - 3(5) \right] - \frac{1}{2}\pi \left[\frac{3^2}{2} - 3(3) \right]$ π	K1 K1 N1	

9	(a)	(i)	$p = \frac{2}{3}, q = \frac{1}{3}, n = 5$ $P(X = 4) = {}^5C_4 \left(\frac{2}{3}\right)^4 \left(\frac{1}{3}\right)^1$ 0.3292	K1 N1	
		(ii)	$p = \frac{1}{3}, q = \frac{2}{3}, n = 5$ $P(Y > 2) = P(Y = 3) + P(Y = 4) + P(Y = 5)$ ${}^5C_3 \left(\frac{1}{3}\right)^3 \left(\frac{2}{3}\right)^2 + {}^5C_4 \left(\frac{1}{3}\right)^4 \left(\frac{2}{3}\right)^1 + {}^5C_5 \left(\frac{1}{3}\right)^5 \left(\frac{2}{3}\right)^0$ 0.16461 + 0.041152 + 0.00412 0.2099	K1 N1	
	(b)	(i)	$X \sim N(2, 0.3^2)$ $P\left(Z > \frac{2.28 - 2}{0.3}\right)$ $P(Z > 0.9333)$ 0.1754 17.54% daripada serangga itu mempunyai panjang lebih daripada 2.28 cm.	K1 N1 N1	
		(ii)	$P(X < m) = 0.15$ $P\left(Z < \frac{m - 2}{0.3}\right) = 0.15$ $\frac{m - 2}{0.3} = -1.037$ $m = 1.6889$	K1 K1 N1	

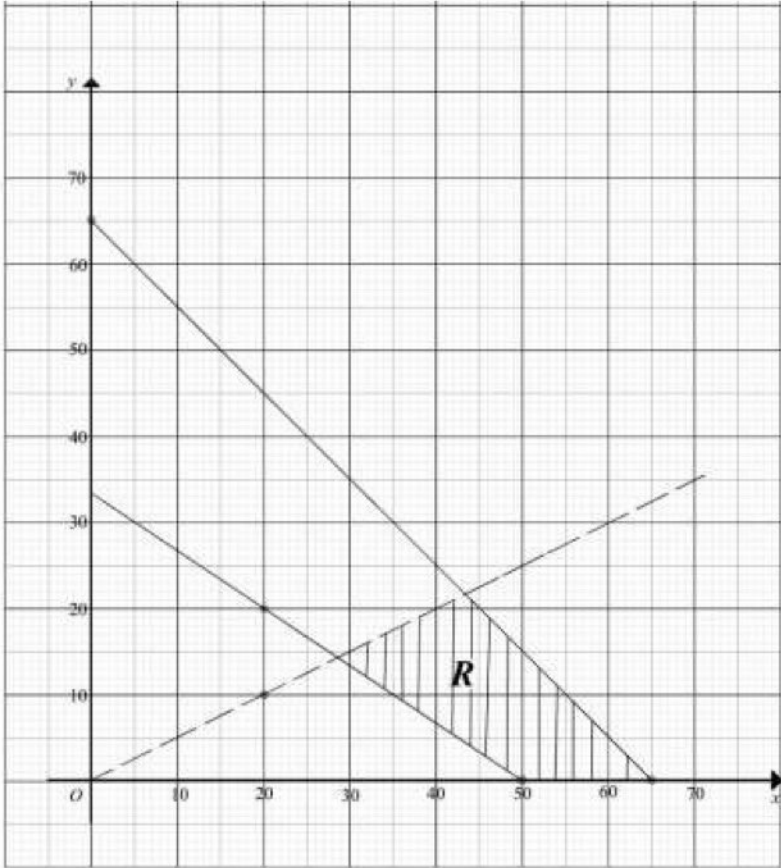
10	(a)	$\left(\frac{8-0}{k-(-2)}\right)\left(\frac{4-0}{10-k}\right) = -1$ <i>Selesaikan persamaan kuadrat</i> $k = 2, k = 6$(diabaikan) $k = 2$	K1 K1 N1	10
	(b)	$m_1\left(-\frac{1}{3}\right) = -1$ $m_1 = 3$ <i>Gantikan (0,2) dalam $y - y_1 = 3(x - x_1)$ atau Gantikan (0,2) dalam $y = 3x + c$ DAN selesaikan untuk c</i> $y = 3x - 6$	K1 K1 N1	
	(c)	$\left(\frac{1(2) + 3(10)}{3 + 1}, \frac{1(0) + 3(4)}{3 + 1}\right) = (h, k)$ $(8,3)$ $Luas\Delta = \frac{1}{2} ((-2)(0) + (2)(3) + (8)(8)) - ((8)(2) + (0)(8) + (3)(-2))$ $30unit^2$	K1 N1 K1 N1	

11	(a)	<table><tr><td>$\sqrt{x}$</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td></tr><tr><td>$\log_{10} y$</td><td>0.27</td><td>0.42</td><td>0.59</td><td>0.74</td><td>0.90</td><td>1.05</td></tr></table>	$\sqrt{x}$	2	4	6	8	10	12	$\log_{10} y$	0.27	0.42	0.59	0.74	0.90	1.05	N1 N1
	$\sqrt{x}$	2	4	6	8	10	12										
	$\log_{10} y$	0.27	0.42	0.59	0.74	0.90	1.05										
(b)	$\log_{10} y = (\log_{10} d)x + \log_{10} r$	P1															
(c)	 - sekurang-kurangnya 1 titik diplotkan dengan betul dan paksi-$\sqrt{x}$ dan paksi- $\log_{10} y$ dilabel dengan seragam. - 6 titik diplot dengan betul. - Garis lurus penyuaian terbaik (seimbang)	K1 N1 N1															
(d)	(i)	$\log_{10} r = *m$ [Dua nilai yang diambil mesti berada pada garis lurus penyuaian terbaik] $\log_{10} r = *0.11$ $r = 1.288$	K1 N1														
	(ii)	$\log_{10} d = *0.08$ $d = *1.202$	K1 N1														

10

12	(a)	60° $(\sqrt{m})^2 = 3^2 + 8^2 - 2(3)(8) \cos 60^\circ @ (\sqrt{m})^2 = n^2 + 5^2 - 2(n)(5) \cos 120^\circ$ $m = 49$ $(n - 3)(n + 8) = 0$ DAN $n = 3, n = -8$ (mesti tunjuk pemfaktoran & 2 nilai n) $n = 3$	P1 K1 N1 N1	10
	(b)	$\frac{CF}{\sin 25^\circ} = \frac{22}{\sin 85^\circ}$ $CF = 9.333$ $AC = 22.28 @ AE = 9.968$ $CE^2 = 9.333^2 + 22^2 - 2(9.333)(22) \cos 110^\circ$ DAN $s = \frac{26.68 + 22.28 + 9.968}{2}$ $L = \sqrt{(29.46)(29.46 - 26.68)(29.46 - 22.28)(29.46 - 9.968)}$ $L = 107.06$ [Jawapan dalam 4ab dan 2tp]	K1 N1 P1 K1 K1 N1	

13	(a)		$\frac{110}{130} \times 100$	K1	10
			84.62	N1	
	(b)		$A = 149.50$	N1	
			$B = 115.50$	N1	
			$D = 126.00$	N1	
	(c)	(i)	$\frac{149.50(40) + 115.50(20) + 150(30) + 126(35)}{40 + 20 + 30 + 35}$	K1	
			137.60	N1	
		(ii)	$\frac{325.40}{P_{2022}} \times 100$	P1	
			$\frac{325.40}{P_{2022}} \times 100 = 137.60$	K1	
			236.48	N1	

14	(a)	$80x + 120y \geq 4000$ $x + y \leq 65$ $x > 2y$	N1 N1 N1	
	(b)	 Lukis sekurang-kurangnya 1 garis lurus dari ketaksamaan dengan betul Lukis 3 garis lurus dari ketaksamaan dengan betul Lorek dan label rantau R dengan betul	K1 N1 N1	
	(c) (i)	$x_{max} = 65$ $Kos = 65(80) = RM5200$	K1 N1	
	(ii)	Garis $y = 10$ $35 \leq x \leq 55$	K1 N1	

15	(a)	$\frac{dv}{dt} = 2t - 4 = 0$ $(2)^2 - 4(2) + p = -16$ $p = -12$	K1 K1 N1
	(b)	$s = \int (t^2 - 4t - 12) dt$ $s = \frac{1}{3}t^3 - 2t^2 - 12t + c$ $t = 0, s = 0$ $0 = \frac{1}{3}(0)^3 - 2(0)^2 - 12(0) + c$ $c = 0$ $s = \frac{1}{3}t^3 - 2t^2 - 12t$ Apabila $t = t, s = -12t$ $\frac{1}{3}t^3 - 2t^2 - 12t = -12t$ $\frac{1}{3}t^3 - 2t^2 = 0$ $t^2\left(\frac{1}{3}t - 2\right) = 0$ $t^2 = 0, \quad \frac{1}{3}t - 2 = 0$ $t = 0 \text{ s}, \quad t = 6 \text{ s}$ $t > 0$, maka $t = 6 \text{ s}$	K1 K1 N1

