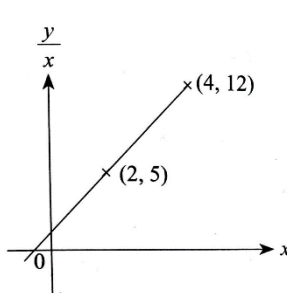


**SKEMA PERMAKAHAN PEPERIKSAAN PERCUBAAN SPM TINGKATAN 5
MATEMATIK TAMBAHAN KERTAS 1**

NO. SOALAN	PEMARKAHAN	MARKAH	JUMLAH
BAHAGIAN A (64 M)			
1	$10 + 10\lambda + 4 + 6\mu + 6 = 40$ $10\lambda + 6\mu = 20$ $5\lambda + 3\mu = 10$ $\mu = \frac{10 - 5\lambda}{3}$	1 1	2
2(a)		2	
(b)	$m = \frac{12 - 5}{4 - 2} = \frac{7}{2}$ $k^2 = \frac{7}{2}$ $k = \sqrt{\frac{7}{2}}$ $12 = \frac{7}{2}(4) + \frac{5}{h}$ $h = -\frac{5}{2}$	1 1	4
3(a)	$2(3^x) = 162$ $3^x = 81$ $3^x = 3^4$ $x = 4$	1 1 1	
(b)	$3^n(3^4) + 3^n(3^5) + (3^n)$ $(3^4 + 3^5 + 1)3^n$ $325(3^n)$	1 1	5

4(a)	$\lim_{n \rightarrow 4} \left(\frac{(k-4)(k+4)}{k-4} \right)$ $= \lim_{n \rightarrow 4} ((k+4))$ $= 8$	1	
4(b)	$\frac{dv}{dy} = 6y - 2$ $\delta v = [6(2) - 2] \times 9 - 0.01$ $= -0.1$	1	4
5(a)	$x < m \text{ atau } x > n$	1,1	
5(b)	$(-8)^2 - 4ac > 0$	1	
	$a < \frac{16}{c}$	1	
	$m+n = \frac{8}{a}, \quad mn = \frac{c}{a}$	1	
5(c)	$\frac{m+n}{mn} = \frac{\frac{8}{a}}{\frac{c}{a}} \text{ or } \left(\frac{8}{a}\right)\left(\frac{a}{c}\right)$	1	
	$\frac{m+n}{mn} = \frac{8}{c}$	1	7
6(a)	$OC \times CT = 40$ $5 \times CT = 40$ $CT = 8 \text{ cm}$		
	$\tan \theta = \frac{8}{5}$	1	
	$\theta = 58^\circ \times \frac{\pi}{180^\circ} = 1.012 \text{ rad}$	1	
6(b)	$\text{Luas sektor OAB} = \frac{1}{2} (5)^2 \left[\frac{\pi}{2} - 1.012 \right]$ $= 6.9875 \text{ cm}^2$	1	
		1	
6(c)	$\text{Panjang lengkok AB} = 5 \left[\frac{\pi}{2} - 1.012 \right] = 2.795 \text{ cm}$	1	
	$\text{Panjang BT} = \sqrt{8^2 + 5^2} - 5 = 4.434 \text{ cm}$	1	
	$\text{Perimeter} = 2.795 + 4.434 + 3 + 5$ $= 15.229 \text{ cm}$	1	6

<p>7 (a)(i)</p> $\begin{aligned}\overline{BD} &= \overline{BA} + \overline{AD} \\ &= -\underline{u} - 6\underline{v} + (7\underline{u} - 2\underline{v}) \\ &= 6\underline{u} - 8\underline{v} \\ \overline{BM} &= \frac{1}{2}(6\underline{u} - 8\underline{v}) = 3\underline{u} - 4\underline{v}\end{aligned}$ <p>(ii)</p> $\begin{aligned}\overline{AM} &= (\underline{u} + 6\underline{v}) + (3\underline{u} - 4\underline{v}) \\ &= 4\underline{u} + 2\underline{v}\end{aligned}$ <p>(b)</p> $\begin{aligned}\overline{AC} &= (7\underline{u} - 2\underline{v}) + (3k\underline{v} - \underline{u}) \\ &= 6\underline{u} + 3k\underline{v} - 2\underline{v}\end{aligned}$ $\overline{AC} = \lambda \overline{AM}$ $6\underline{u} + (3k - 2)\underline{v} = \lambda (4\underline{u} + 2\underline{v})$ $\lambda = \frac{3}{2} \quad k = \frac{5}{3}$	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>6</p>
<p>8(a)</p> $(p, t) = \left(\frac{2h(3)+2p(2)}{2+3}, \frac{h(3)+3t(2)}{2+3} \right)$ $p = \frac{6h+4p}{5} \quad \text{or} \quad t = \frac{3h+6t}{5} \quad \text{or} \quad h = \frac{-t}{3} \quad \text{or} \quad p = \frac{6(\frac{-t}{3})+4p}{5}$ $P = -2t$ <p>(b)</p> $m_2 = \frac{-1}{3}, \quad B(-2,1)$ $y - 1 = -\frac{1}{3}(x + 2)$ $y = -\frac{1}{3}x - \frac{2}{3} + 1$ $y = -\frac{1}{3}x + \frac{1}{3} \quad / \text{ATAU kaedah Setara} / \text{OR other valid Method}$	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>6</p>
<p>9(a)</p> $\begin{aligned}\int_{-1}^1 g(x) dx &= \frac{1}{2} \left[\frac{2x-1}{x^2} \right]_{-1}^1 \\ &= \frac{1}{2} \left[\frac{2(1)-1}{1^2} - \frac{2(-1)-1}{(-1)^2} \right] \\ &= \frac{1}{2} [1 - (-3)] \\ &= 2\end{aligned}$ <p>(b)</p> $\int_4^5 f(x) dx + \int_5^7 f(x) dx + \int_7^{10} f(x) dx$ <p>7</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>5</p>

10(a)	$80, 78, 76, \dots, 6$ $80 + (n - 1)(-2) = 6$ $2n = 76$ $n = 38$	1	
(b)	Tinggi dinding = 38×7 $= 266 \text{ cm}$ $S_{28} = \frac{38}{2} [2(80) + (80 - 1)(-2)]$ $= 1634 \text{ cm}$ kos batu bata = $1634 \times \text{RM}0.50$ $= \text{RM } 817$	1 1 1 1	6
11(a)	$\frac{n!}{(n - 2)! 2!} = 36$ $\frac{n(n - 1)(n - 2)!}{(n - 2)! 2!} = 36$ $n^2 - n - 72 = 0$ $(n - 9)(n + 8) = 0$ $n = 9$ (accept)	1 1 1	
(b) (i)	${}^2P_1 \times {}^4P_3$ 48	1 1	7
(ii)	${}^4P_3 \times {}^3P_1$ 72	1 1	
12 (a)	$a + b + a + b + b + a + 0.1 = 1$ $3a + 3(2a) = 0.9$ $a = 0.1$ $b = 2(0.1) = 0.2$	1 1 1	
(b)	$P(X > 1) = 1 - 0.1 - 0.2$ $= 0.7$	1	4

BAHAGIAN B (16 M)			
13(a)	$k = 8$	1	
(b)(i)	$f(10) = 10$ $\frac{10+m}{10-8} = 10$ $10+m = 10(2)$ $m = 10$	1	
(ii)	$f(x) = \frac{x+10}{x-8}$ $\frac{x+10}{x-8} = y$ $x+10 = xy - 8y$ $x - xy = -8y - 10$ $x = \frac{-8y - 10}{1 - y}$ $x = \frac{8y + 10}{y - 1}$ $f^{-1}(x) = \frac{8x + 10}{x - 1}$	1	
(iii)	$\frac{1}{2} f^{-1}(p) = 1$ $\frac{1}{2} \left(\frac{8p + 10}{p - 1} \right) = 1$ $4p + 5 = p - 1$ $3p = -6$ $p = -2$	1	
			8
14(a)	<p>(i) $\frac{1}{\cos 2\theta} = \frac{1}{2\cos^2 \theta - 1}$ $= \frac{1}{2k^2 - 1}$</p> <p>(ii) $\sin(90^\circ - \theta) = \sin 90^\circ \cos \theta - \cos 90^\circ \sin \theta$ $= (1)(k) - (0)\left(\frac{\sqrt{1-k^2}}{1}\right)$ $= k$</p>	1	
		1	
		1	
		1	

(b)	$4(2 \cos^2 \theta - 1) + 2 \cos 2\theta + 1 = 0$ $(4 \cos 2\theta + 3)(2 \cos 2\theta - 1) = 0$ $\cos 2\theta = -\frac{3}{4}, \quad \cos \theta = \frac{1}{2}$ $\theta = 30^\circ, 69^\circ 18', 110^\circ 43', 150^\circ,$ $210^\circ, 249^\circ 18', 290^\circ 43', 330^\circ$	1 1 1 1	8
15	$x = y + 1$ $4y^2 - 10x^2 = 3xy$ $4y^2 - 10(y + 1)^2 = 3y(y + 1)$ $(9y + 5)(y + 2) = 0$ $y = -\frac{5}{9}, \quad y = -2$ $x = \frac{4}{9}, \quad x = -1$ $\left(\frac{4}{9}, -\frac{5}{9}\right) = \left(\frac{m}{9}, \frac{n}{9}\right)$ $m = 4, n = -5$ $(-1, -2) = (3k, -2p)$ $3k = -1$ $k = -\frac{1}{3}$ $-2p = -2$ $p = 1$	1 1 1 1 1 1 1	8