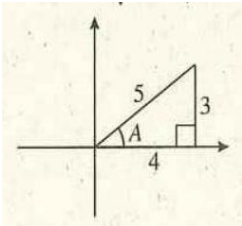
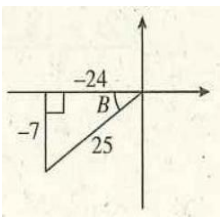


SKEMA PEMARKAHAN
MATEMATIK TAMBAHAN KERTAS 1 GEMPUR SPMC 2025

BIL	LANGKAH PENGIRAAN		MAR KAH	JUM LAH	
BAHAGIAN A					
1	(a)	$\cos \theta = \frac{8}{10} = 0.8$ $\theta = \frac{36^{\circ}52'}{180^{\circ}} \times 3.142$ $= 0.6435\text{rad}$	1 1	4	
	(b)	$\text{Arc } PQ = 10(0.6435) = 6.435 \text{ cm}$ $PR = \sqrt{10^2 - 8^2} = 6 \text{ cm}$ $\therefore \text{ Perimeter kawasan berlorek}$ $= PR + RQ + \text{Arc}PQ$ $= 6 + 2 + 6.435$ $= 14.435 \text{ cm}$	1 1		
2	(a)	$gh(2) = g[h(2)]$ $= g[2(2)]$ $= g(4) = 4(4) - 7 = 9$	1 1	6	
	(b)	(i)	Let $y = h(x)$ Then, $h^{-1}(y) = x$ $\frac{2}{3-y} = x$ $2 = 3x - xy$ $xy = 3x - 2$ $y = \frac{3x-2}{x}$ $\therefore h: x \rightarrow \frac{3x-2}{x}, x \neq 0$		1 1
		(ii)	$h(x) = -5$ $\frac{3x-2}{x} = -5$ $3x-2 = -5x$ $8x = 2$ $x = \frac{1}{4}$		1 1
3	(a)	$f(x) = x^2 + 6x + \left(\frac{6}{2}\right)^2 - \left(\frac{6}{2}\right)^2 + 2k - 3$ $f(x) = (x+3)^2 + 2k - 12$ $x = -3$	1 1 1	5	
	(b)	$2k - 12 = 4$ $k = 8$	1 1		

4	(a)	$(1 + 2m)^2 - 4(m)(m - 1) = 0$ $1 + 4m + 4m^2 - 4m^2 + 4m = 0$ $1 + 8m = 0$ $8m = -1$ $m = -\frac{1}{8}$	1 1 1	6
	(b)	$(x - 8)(x + 2) \leq 0$ $(-3 - 8)(-3 + 2) \leq 0$ $(0 - 8)(0 + 2) \leq 0$ $(0 - 8)(0 + 2) \leq 0$ $\therefore -2 \leq x \leq 8$	1 1 1	
5	(a)	$2^{3x} = 8 + 2^{3x-1}$ $2^{3x} = 8 + 2^{3x} \cdot 2^{-1}$ $2^{3x} = 8 + \frac{2^{3x}}{2}$ $(2^{3x}) = 16 + 2^{3x}$ $2^{3x} = 16$ $2^{3x} = 2^4$ Therefore, $3x = 4$ $x = \frac{4}{3}$	1 1 1	6
	(b)	$\log_2 \frac{x^3}{y} = \log_2 x^3 - \log_2 y$ $= 3\log x - \log y$ $= 3\log_2 x - \log_2 y$ $= 3h - k$	1 1 1	
6	(a)	(i) $5 - x = 8 - 5$ $x = 2$	1 1	6
		(ii) 44, 47, 50	1	
	(b)	$a + d = -3$ @ $a + 5d = 13$ Kaedah penghapusan $d = 4, a = -7$	1 1 1	
7	(a)	(i) $\frac{x^4}{x^2} = x^2$	1	
	(ii)	$\frac{x^2}{1 - x^2} = \frac{1}{3}$ $3x^2 = 1 - x^2$ $4x^2 = 1$ $x^2 = \frac{1}{4}$ $x = \pm \frac{1}{2}$ $\therefore x = \frac{1}{2}$	1 1	

	(b)	$0.5 - P(Z > z) = 0.33$ $P(Z > z) = 0.17$ $z = 0.954$ $\frac{k - 198}{0.12} = 0.954$ $k = 198.11$		1 1 1 1		
12	Hapus pemboleh ubah pertama Hapus pemboleh ubah kedua $z = 8$ $y = 29$ $x = -38$			1 1 1 1 1	5	
BAHAGIAN B						
13	(a)	(i)	$xy = \frac{1}{3}(p - 1)x^2 + 4$	1	8	
		(ii)	$\frac{1}{3}(p - 1) = -2$ $p - 1 = -6 @ \quad 6t = 4$ $p = -5, \quad t = \frac{2}{3}$	1 1 1 1		
	(b)	(i)	$m = -\frac{4}{3}$	1		
		(ii)	$\frac{1}{y} = -\frac{4}{3}\left(\frac{1}{x}\right) + 4$ $y = \frac{3x}{12x - 4}$	1 1		
			(iii)	$y = \frac{3}{11}$		1
14	(a)	(i)	$\overrightarrow{OA} = \begin{pmatrix} 10 \\ 5 \end{pmatrix}$	1		
		(ii)	$\widehat{\overrightarrow{OA}} = \begin{pmatrix} \frac{2}{\sqrt{5}} \\ \frac{1}{\sqrt{5}} \end{pmatrix}$	1		
	(b)	$\overrightarrow{DF} = \overrightarrow{DE} + \overrightarrow{DO}$ $= \overrightarrow{DE} - \overrightarrow{OD}$ $= (-5\mathbf{i} + 3\mathbf{j}) - (3\mathbf{i} + 2\mathbf{j})$ $= -8\mathbf{i} + \mathbf{j}$		1 1 1		
		(c)	(i)	$\begin{pmatrix} 8 + h \\ 5 \end{pmatrix}$		1
			(ii)	$\sqrt{(8 + h)^2 + 5^2} = 13$ $(h - 4)(h + 20) = 0$ $\therefore h = 4$		1 1

15	(a)	$\begin{aligned}\sin 2\theta &= \cos \theta \\ 2 \sin \theta \cos \theta &= \cos \theta \\ 2 \sin \theta \cos \theta - \cos \theta &= 0 \\ \cos \theta (2 \sin \theta - 1) &= 0 \\ \cos \theta = 0 &\text{ atau } \sin \theta = \frac{1}{2} \\ \theta = 90^\circ, 270^\circ &\quad \theta = 30^\circ, 150^\circ\end{aligned}$ Maka, $\theta = 30^\circ, 90^\circ, 150^\circ, 270^\circ$.	1 1 1 1	
	(b)	(i) $\cot A = \frac{1}{\tan A} = \frac{1}{\frac{3}{4}} = \frac{4}{3}$	1	
		(ii) $\tan A = \frac{3}{4}, \tan B = \frac{7}{24}$   $\begin{aligned}\sin(A+B) &= \sin A \cos B + \cos A \sin B \\ &= \left(\frac{3}{5}\right)\left(-\frac{24}{25}\right) + \left(\frac{4}{5}\right)\left(-\frac{7}{25}\right) \\ &= \left(-\frac{72}{125}\right) + \left(-\frac{28}{125}\right) \\ &= -\frac{100}{125} \\ &= -\frac{4}{5}\end{aligned}$	1 1	8