

**SKEMA PEMARKAHAN  
MATEMATIK TAMBAHAN – KERTAS 1  
PERCUBAAN 2022  
TINGKATAN 5**

<b>BAHAGIAN A [ 64 MARKAH]</b>					
<b>Nombor</b>	<b>Penyelesaian markah</b>			<b>Sub Markah</b>	<b>Markah Penuh</b>
1	(a)	$-\frac{5}{6}k = 5$ $k = -6$		K1 N1	<b>4</b>
	(b)	$y - x = \frac{1}{2}x^2 + \frac{11}{2}$ $m = \frac{1}{2} \text{ dan pintasan-}y = \frac{11}{2}$		K1 N1	
2	(a)	(i)	$-\frac{2}{3}$	K1	<b>5</b>
		(ii)	$S_n = \frac{2(1)}{1 - \left(-\frac{2}{3}\right)}$ $\frac{6}{5}$	K1 N1	
3	(a)	Sebelah kanan $= \binom{n}{r}(r!)$ $= \frac{n!}{(n-r)!} \times r!$ $= \frac{n!}{(n-r)!}$ $= {}^n P_r = \text{sebelah kiri/terbukti}$		K1 N1	<b>5</b>
		(b)	$\frac{{}^8 P_6}{2(6)} \text{ atau } \frac{{}^8 P_7}{2(7)} \text{ atau } \frac{{}^8 P_8}{2(8)}$ $\frac{{}^8 P_6}{2(6)} + \frac{{}^8 P_7}{2(7)} + \frac{{}^8 P_8}{2(8)}$ $7080$		

4	(a)	(i) 3  (ii) $\cos 2\theta = \frac{2}{3}$  $2\theta = 48.19^\circ, 311.81^\circ$  $\theta = 24.10^\circ, 155.91^\circ$	N1  K1  K1  N1	6
	(b)	$\tan A = \frac{15}{8}$  $\frac{8}{15}$	P1  N1	
5	(a)	$2^y \times 2^{3x} = 5 + 2^{3x}$  $2pq = 5 + 2p$ atau setara  $p = \frac{5}{2(q-1)}$	K1  K1  N1	6
	(b)	$(m+4)^2 = m+10$ atau $x^2 + 7x + 6 = 0$  $(x+1)(x+6) = 0$  $m = -1, -6$	K1  K1  N1	
6	(a)	$gf$ atau $g(x-6000)$  $gf(x) = 0.03(x-6000)$	K1  N1	4
	(b)	$gf(x) = 0.03(10500-6000)$  RM 135	K1  N1	
7	(a)	$f(x) = (x-4)^2 - 9$  $f(x) = -(x-4)^2 + 9$	P1  N1	5
	(b)	$3m = 5$ atau $-2n = -2$  $m = \frac{5}{3}$  $n = 1$	K1  N1  N1	

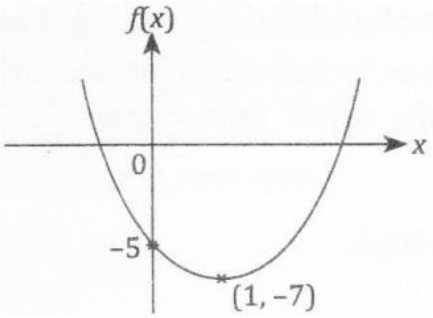
8	(a)	$\frac{(x-1)(2x) - x^2}{(x-1)^2}$ $4 \left[ \frac{2^2}{(2-1)^2} - 0 \right]_0$ <p>16</p>	K1	6
	(b)	$\frac{dy}{dx} = 6x^2 + 5x$ <p><math>y = 2x^3 + \frac{5}{2}x^2 + c</math>, dan gantikan nilai x dan y untuk nilai c = <math>-\frac{5}{2}</math></p> $y = 2x^3 + \frac{5}{2}x^2 - \frac{5}{2}$	K1 K1 N1	
9	(a)	$k = \frac{1}{3}$ ${}^4C_4 p^4 q^0 = \frac{1}{81}$ $p = \frac{1}{3}$	K1 K1 N1	6
	(b)	$1 - 2P(Z > m) = 8P(Z > h) \text{ atau } P(Z > h) = 0.1$ $P(Z < h) = 0.9$ $h = 1.281 \text{ atau } 1.282$	K1 K1 N1	
10	(a)	$\vec{AO} + \vec{OE} = m(\vec{AO} + \vec{OD}) \quad \text{K1}$ $\vec{OE} = m\vec{d} + (1-n)\vec{a} \quad \text{N1}$	K1 N1	6
	(b)	<p>(i) <math display="block">\vec{OE} = 3n\vec{d} + 2n\vec{a}</math></p> $2n = 1 - m \text{ atau } m = 3n$ $2n = 1 - 3n \text{ atau } m = 3\left(\frac{1-m}{2}\right)$ $n = \frac{1}{5} \text{ dan } m = \frac{3}{5}$	K1 K1 N1	

	(ii)	$\vec{AE} = \frac{3}{5} \vec{AD}$ $DE : EA = 2 : 3$	K1 N1	K1 N1	<b>7</b>
11		$\frac{1}{\log_2 y}$ atau $\frac{1}{\log_y 2}$ $(\log_2 y)^2 = 4$ atau $(\log_y 2)^2 = \frac{1}{4}$ $\log_2 y = 2$ atau $\log_2 y = -2$ atau $\log_y 2 = \frac{1}{2}$ atau $\log_y 2 = -\frac{1}{2}$ $4, \frac{1}{4}$	P1 K1 K1	P1 K1 K1 N1	<b>4</b>
12	(a)	(i) $p = 3$ $q = 1$ (ii) $r + 4 = 3$ $r = -1$	N1 N1 K1 N1	N1 N1 K1 N1	
	(b)	$\frac{1}{2} [(11 \times 4) + (3 \times 2) + 8x] - [(8 \times 3) + 4x + (11 \times 2)] = 0$ ATAU $\frac{8-4}{11-3} = \frac{4-2}{3-x}$ $x = -1$	K1 N1	K1 N1	<b>6</b>

**BAHAGIAN B**

**[ 16 MARKAH]**

13	(a) $6x - 2x^2 = 0$ $2x(3 - x) = 0$ $\left(0, \frac{1}{2}\right), \left(3, \frac{19}{2}\right)$	K1 K1 N1																												
	(b) $\frac{d^2y}{dx^2} = 6 - 4x$ dan 6 atau $\frac{d^2y}{dx^2} = 6 - 4x$ dan $-6$  <b>ATAU</b> <table border="1" data-bbox="493 625 1172 905" style="margin: auto;"> <tbody> <tr> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">atau</td> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;"><math>\frac{dy}{dx}</math></td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">+</td> <td></td> <td style="padding: 5px;"><math>\frac{dy}{dx}</math></td> <td style="padding: 5px;">+</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">-</td> </tr> <tr> <td style="padding: 5px;">tangen</td> <td style="padding: 5px;">\</td> <td style="padding: 5px;">—</td> <td style="padding: 5px;">/</td> <td></td> <td style="padding: 5px;">tangen</td> <td style="padding: 5px;">/</td> <td style="padding: 5px;">—</td> <td style="padding: 5px;">\</td> </tr> </tbody> </table> $\left(0, \frac{1}{2}\right)$ titik minimum dan $\left(3, \frac{19}{2}\right)$ titik maksimum	$x$	-1	0	1	atau	$x$	2	3	4	$\frac{dy}{dx}$	-	0	+		$\frac{dy}{dx}$	+	0	-	tangen	\	—	/		tangen	/	—	\	K1          N1	
$x$	-1	0	1	atau	$x$	2	3	4																						
$\frac{dy}{dx}$	-	0	+		$\frac{dy}{dx}$	+	0	-																						
tangen	\	—	/		tangen	/	—	\																						
	(c) $\frac{dy}{dx} = 6(2) - 2(2)^2$ $\delta y = [6(2) - 2(2)^2] \times 0.01$ $\frac{43}{6} + 0.04 = \frac{1081}{150}$	P1 K1 N1	<b>8</b>																											
14	(a) (i) $\frac{3}{4} rad$  (ii) $\frac{1}{2}r^2\left(\frac{3}{4}\right) - 6$ $\frac{1}{2}r^2\left(\frac{3}{4}\right) = 54$ atau $r = 12$ Panjang SU = 8	N1  K1  K1  N1																												
	(b) (i) $\frac{1}{2}(30)^2(2.65)$ atau $\frac{1}{2}(12)^2(2.65)$ $\frac{1}{2}(30)^2(2.65) - \frac{1}{2}(12)^2(2.65)$  1001.7 cm <sup>2</sup>	K1 K1 N1																												

		(ii) 7	N1	
15	(a)	$2\left(x - \frac{n}{4}\right)^2 - \frac{n^2}{8} + p$ $\frac{n}{4} = 1 \text{ atau } -\frac{n^2}{8} + p = -7$ $n = 4$ $p = -5$	K1  K1  N1  N1	
	(b)	 <p>Bentuk graf</p> <p>Titik minimum</p>	P1  P1	
	(c)	$(-4)^2 - 4(2)(-5 - h) > 0$ $h > -7$	K1  N1	

## SKEMA PEMARKAHAN TAMAT