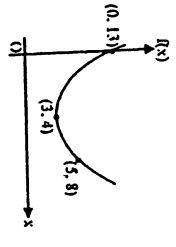


SEK. MEN. KEB. AGAMA NAIM LILIBANAT
PEPERIKSAAN PERCUBAAN SPM 2013
SKEMA PERMARKAHAN MATEMATIK TAMBAHAN KERTAS 1

No	Solution and Mark Scheme		Sub Marks	Total Marks
	(a)	(b)		
1	(a)	4	1	2
	(b)	$0 \leq f(x) \leq 6$	1	
2	(a)	$4x+2$	1	3
	(b)	$-\frac{2}{3}$	2	
		B1 : $4x+2=x$	3	
3		3	3	3
		B2 : $3k+5=14$ B1 : $f(3)=14$	3	
4		2	3	3
		B2 : $(-2)^2 - 4(1)(p-1) = 0$ B1 : $x^2 + p = 2x+1$ or $x^2 - 2x + p - 1 = 0$	3	
5				2
			3	
		B1 : bentuk minimum. B1 : melalui mana-mana dua titik		
6		$x \leq -2, x \geq 5$	3	3
		B2 : $(x+2)(x-5) \geq 0$ B1 : $x^2 - 3x - 10 \geq 0$	3	

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8		$-\frac{1}{2}$	3	3
		B2 : $4^x = \frac{1}{2}$ B1 : $4^x(16) - 4^x(4) = 6$		
9		$\frac{3}{7}$	4	4
		B2 : $\left(\frac{6x}{3x-1}\right) = 3^2$ B1 : $\log_3\left(\frac{6x}{3x-1}\right) = 2$		
10	(a)	$\frac{2+a-b}{3}$	2	2
	(b)	B3 : $\frac{2 + \log_2 m - \log_2 n}{3}$ B2 : $\frac{\log_2 4m - \log_2 n}{\log_2 8}$ B1 : $\frac{\log_2\left(\frac{4/n}{n}\right)}{\log_2 8}$		
11	(a)	51	1	3
	(b)	B1 : $12 - (x-27) = y-12$ B1 : $d = T_2 - T_1$ or $T_2 = S_2 - S_1$ 1488 B2 : $S_8 - S_3 = 1530 - 42$		
12		-3	3	3
		B1 : $S_3 = \frac{6(2^3-1)}{2-1}$ or $S_8 = \frac{6(2^8-1)}{2-1}$		

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13	(a)	3 B1 : $\log_2 y = \log_2 8 - x \log_2 h$	2	4
	(b)	$\frac{1}{4}$ B1 : $(2,7):7 = 3 - 2(\log_2 h)$ or gradient = $\frac{7-3}{2-0} = 2$	2	
14		3 : 2 B2 : $2m = 3n$ B1 : $\frac{11m + (-4)n}{m+n} = 5$ or $\frac{1m + 6n}{m+n} = 3$	3	3
15		2 and -14 B2 : 2 or -14 or $\sqrt{6^2 + (6+k)^2} = 10$ B1 : $ 6i + (6+k)j = 10$	3	3
16		$k=2$ and $m=1$ B3 : $k=2$ or $m=1$ B2 : $k+3=5$ or $m+2=3$ B1 : $\vec{PQ} = 2i + 4j$ or $\vec{QR} = (k+1)i + (m-2)j$	4	4

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17		$15^\circ, 75^\circ, 195^\circ, 255^\circ$ B3 : betul mana-mana 3 nilai sudut B2 : betul mana-mana 2 nilai sudut or $\sin(2x) = 0.5$ B1 : betul salah satu nilai sudut or $30^\circ, 150^\circ$ or $390^\circ, 510^\circ$	4	4
18	(a)	1.047 rad B1 : $\cos \theta = \frac{5}{10}$	2	4
	(b)	30.699 or 30.70 B1 : $\frac{1}{2}(10)^2(1.047)$ or $\frac{1}{2}(5)(10)\sin 60$	2	
19		-4π B2 : $\frac{dA}{dt} = \frac{dA}{dr} x \frac{dr}{dt}$ $\frac{dA}{dt} = (8\pi)x(-0.5)$ B1 : $\frac{dA}{dr} = 2\pi$ or $\frac{dr}{dt} = -0.5$	3	3

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20	3	$B_2 : 12\left(\frac{1}{2}\right) + 2p = 4p$ $B_1 : f'(x) = 6x^2 + 2px - 5$ or $f''(x) = 12x + 2p$	3	3
	4	$B_3 : \frac{1}{4} \left[\left(\frac{1}{(3-2(2))^2} \right) - \left(\frac{1}{(3-2(0.5))} \right) \right]$ $B_2 : \int \frac{1}{(3-2x)^3} dx = \frac{1}{4} \left[\frac{1}{(3-2x)^2} \right]$ $B_1 : \int \frac{4}{(3-2x)^3} dx = \frac{1}{(3-2x)^2}$	4	4
21	(a)	6	1	
	(b)	5.5	2	3
22	(a)	40320	2	4
	(b)	4320	2	4
23	(a)	$B_1 : 8! \text{ or } 8P_8$ $B_2 : 1 - \left(\frac{12}{90}\right) - \left(\frac{30}{90}\right) \text{ or } \left(\frac{12}{90}\right) + \left(\frac{30}{90}\right)$ $B_1 : \frac{4}{10} \times \frac{3}{9} \text{ or } \frac{6}{10} \times \frac{5}{9}$ or $\frac{4}{10} \times \frac{6}{9} \text{ or } \frac{6}{10} \times \frac{4}{9}$	3	3
	(b)	0.1361	2	4
24	(a)	0.001290	2	4
	(b)	$B_1 : 8C_7(0.3)^7(0.7)^1$ or $8C_6(0.3)^6(0.7)^2$ $B_2 : 8C_7(0.3)^7(0.7)^1$ or $8C_6(0.3)^6(0.7)^2$	2	4

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