

SULIT

3472/1

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Additional
Mathematics
Kertas 1
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2 Jam



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ADDITIONAL MATHEMATICS
Kertas 1

MARKING SCHEME

Kertas soalan ini mengandungi 6 halaman bercetak

No.	Penyelesaian	Sub-markah	Markah penuh
1	(a) 7,13 (ignore any bracket)	1	2
	(b) Many to many	1	
2	(a) $\frac{3-2x}{4}$ $y = \frac{3-4x}{2}$	2 B1	3
	(b) $-\frac{7}{4}$	1	
3	$\frac{1}{4}$	3	3
	$2(6x+1)-1=4$	B2	
	$2(6x+1)-1$	B1	
4	$-2, 1$	3	3
	$(2p)^2 - 4(1)(2-p) = 0$	B2	
	$x^2 + 2px + 2 - p = 0$	B1	
5	8.531 , 0.4689	3	3
	$\frac{-(-9) \pm \sqrt{(-9)^2 - 4(1)(4)}}{2(1)}$	B2	
	$x^2 - 9x + 4 = 0$	B1	
6	(a) $k = -4$, $p = 4$	1, 1	3
	(b) $x = -3$	1	
7	6	3	3
	$\frac{1}{2^x} = \frac{1}{64}$	B2	
	$\frac{1}{2^x} (16-8) = \frac{1}{8}$	B1	

8		$\frac{6}{11}$	$\frac{3x+2}{x-1} = 9$	$\frac{3x+2}{x-1}$ or $9(x-1)$ or $\frac{3x+2}{9}$	B2	B1	3
9		$\frac{2p+r}{2p+r}$ $\frac{\log_2 2}{\log_3 3} + 2 \frac{\log_3 m}{\log_5 m}$ $\log^m 2 + 2 \log^m 3$	$\log^m 2 + \log^m 3^2$ or $\frac{\log 2}{\log 3}$ or $\frac{\log m}{\log m}$		B3	B2	4
10		$x = 5$ $2x + 1 - (2x - 2) = 2x - 2 - x$ or equivalent.			B1	B1	2
11	(a) 5	$a(1 + 2 + 2^2) = 35$ @ $\frac{2^{n-1}}{2^2-1} = 35$			B1	B1	2
	(b) 640				1		3
12	(a) $\frac{3}{2}$ $S_1 = 27$ or $S_2 = 45$				B1	B1	2
	(b) 81				2		4
		$\frac{1 - \frac{1}{3^{12}}}{\frac{1}{3}}$					

13	(a)	$\log y = \log p - \frac{1}{2} \log x$	1	4
	(b)	(i) 6	1	
(ii) $h = 4$		2		
		$\frac{6-h}{0-h} = -\frac{1}{2} \quad \text{or} \quad 4 = 6 - \frac{1}{2}(h)$	B1	
14		$y = \frac{3}{2}x + \frac{17}{2}$ or equivalent $y - 4 = \frac{3}{2}(x + 3)$ or equivalent $m_2 = \frac{3}{2}$ or $m_1 = -\frac{2}{3}$	3 B2 B1	3
15.	(a)	$-4i - 3j$	1	2
	(b)	$\frac{-4i - 3j}{5}$	1	
16		$m = 8$ and $n = -10$ $m = 8$ or $n = -10$ $m = 12 - 4$ or $m - n = 16 + 2$	3 B2 B1	3
17		$x = 41.41^\circ, 130^\circ, 318.59^\circ$ $\cos x = 0.75, \cos x = -1$ $(4\cos x - 3)(\cos x + 1) = 0$ $2(2\cos^2 x - 1) + \cos x - 1 = 0$	4 B3 B2 B1	4
18	(a)	4.538 rad	1	3
	(b)	6.611 $r(4.538) = 30$	2 B1	
19	(a)	$6(x + 1)^2$ $2[3(x + 1)^2]$	2 B1	4
	(b)	60 $12(x + 1)$	2 B1	

20		8π $20\pi(0.4)$ $2\pi r$	3 B2 B1	3
21	(a)	-3	1	4
	(b)	4 $3 + [2k - k] = 7$ $\int_1^2 h(x) dx + \int_1^2 k dx$ or $[kx]$	3 B2 B1	
22	(a)	924 ${}^{12}C_6$	2 B1	4
	(b)	462 ${}^5C_0 \cdot {}^7C_6$ or ${}^5C_1 \cdot {}^7C_5$ or ${}^5C_2 \cdot {}^7C_4$	2 B1	
23		$k = 4, -5$ $\frac{k + k^2 + 80}{10} = 10$ $\frac{\sum x}{6} = 10$ or $\sum x = 80$	3 B2 B1	3
24		$\frac{74}{105}$ $1 - \left[\binom{4}{15} \binom{3}{14} + \binom{5}{15} \binom{4}{14} + \binom{6}{15} \binom{5}{14} \right]$ or $1 - \frac{{}^4C_2 + {}^5C_2 + {}^6C_2}{{}^{15}C_2}$ $\binom{4}{15} \binom{3}{14}$ or $\binom{5}{15} \binom{4}{14}$ or $\binom{6}{15} \binom{5}{14}$ or ${}^4C_2 + {}^5C_2 + {}^6C_2$	3 B2 B1	3

25	(a)	$k = -0.4$ $0.5 - 0.1554$ or 0.3446	2 B1	4
	(b)	0.6554 $0.1554 + 0.5$ or $1 - 0.3446$	2 B1	