

3472/1
Additional
Mathematics
Kertas 1
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2 Jam




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ADDITIONAL MATHEMATICS
Kertas 1

MARKING SCHEME

Kertas soalan ini mengandungi 5 halaman bercetak
6

NO		SOLUTION	SUB MARKS	FULL MARKS
1	(a) many to one (b) $f: x \rightarrow x^2$		B1 B1	2
2		$x = \frac{3}{2}$ and $x = -1$ $x = \frac{3}{2}$ or $x = -1$	2 B1	2
3	(a) 17 $\frac{x-2}{3} = 5$ (b) $-\frac{1}{3}$ $\frac{(3-x)-2}{3}$		2 B1 2 B1	4
4		$p > -\frac{3}{4}$ $(-6)^2 - 4(4)(p+3) < 0$ $4x^2 - 6x + p + 3 = 0$	3 B2 B1	3
5	(a) 6 $\frac{0+k}{2} = 3$ (b) $f(x) = -(x-3)^2 + 5$		2 B1 1	3
6		$-3 \leq x \leq 9$  $(x+3)(x-9)$	2 B2 B1	3

7	3	$2^{3x} = 2^{-3+4x}$ or $2^{3x} = 2^{4(1-x)}$ or equivalent		B1 B2 3	3
8		$\frac{3+2p}{4+p}$ $\frac{\log_2 8 + 2\log_2 m}{\log_2 16 + \log_2 m}$ $\frac{\log_2 8m^2}{\log_2 16m}$ use two laws of logarithm use one law of logarithm change to any base		B1 B2 B3 4	4
9	9	$r = 2p$ $pr^5 = 32p^6$		B1 2	2
10	10	1 $10q - 4 = 6$ $3d = 10q - 4$		B1 B2 3	3
11	11	(a) $Y = \frac{x^2}{Y}$ $X = \frac{1}{x^2}$ 2 $\frac{4-0}{0-k} = -2$		B1 2 1 1	4
12	12	$P(0, 3)$ $\frac{1+1}{x-2} = -2$ $m = -2$		B1 B2 3	3

13		$-8i - 4j$ $-5i$	2 B1	2
14	(a)	$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$ or $i+j$ $AC = AO + OC$	2 B1	4
	(b)	3 $\lambda \begin{pmatrix} 1 \\ 1 \end{pmatrix} = \begin{pmatrix} 2k-3 \\ 3 \end{pmatrix}$ or $\frac{1}{1} = \frac{2k-3}{3}$	2 B1	
15		$30^\circ, 150^\circ, 210^\circ, 330^\circ$ $30^\circ, 150^\circ$ or $210^\circ, 330^\circ$ $\sin x = \pm \frac{1}{2}$ or 30° is seen $\sin^2 x = \frac{1}{4}$	4 B3 B2 B1	4
16	(a)	0.65 $8\theta = 5.2$	2 B1	4
	(b)	79.74 $\frac{1}{2}(8^2)(3.142) - \frac{1}{2}(8^2)(0.65)$	2 B1	
17	(a)	$A(1, 2)$ $\frac{dy}{dx} = 4x+1$ or 5 is seen	2 B1	4
	(b)	$y = 5x - 3$ $\frac{y-2}{x-1} = 5$	2 B1	

18		$4(2x+1)$ $2(2x+1)(2)$ or $8(4r+1)(\frac{1}{2})$ $(2x+1)^2$ or 2	<p>3</p> <p>B2</p> <p>B1</p>	3
19		$\frac{m}{2}$ $\frac{-8}{(3+1)^2}(-m)$ $\frac{dy}{dx} = -8(x+1)^{-2}$ or $\delta x = -m$	<p>3</p> <p>B2</p> <p>B1</p>	3
20		<p>18</p> <p>27 is seen</p>	<p>2</p> <p>B1</p>	2
21		$\frac{2}{15}$ $5+2k\left[\frac{x^2}{2}\right]_1^4 = 7$ $2+3$ or $5+2k\int_1^4 x dx = 7$	<p>3</p> <p>B2</p> <p>B1</p>	3
22	(a)	<p>7</p> $\frac{28+x}{7} = 5$ or $\frac{6+7+x+1+8+3+3}{7} = 5$	<p>2</p> <p>B1</p>	3
	(b)	$3 \leq m \leq 6$	<p>1</p>	

23	(a)	35 7C_4	2 B1	4
	(b)	60 ${}^3C_1 \times {}^6C_3$	2 B1	
24	(a)	$\frac{1}{8}$ $\frac{5}{8} \times \frac{1}{5}$	2 B1	4
	(b)	$\frac{23}{40}$ $\frac{3}{8} \times \frac{1}{5} + \frac{5}{8} \times \frac{4}{5}$	2 B1	
25	(a)	$0.125 < Z < 0.225$ $\frac{53.25 - 52}{10}$ or $\frac{54.25 - 52}{10}$	2 B1	4
	(b)	41.7 g $k = -1.03$	2 B1	