

BAHAN KECEMERLANGAN
SPM 2015

Skema
BK 9

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MARK SCHEME FOR ADDITIONAL MATHS. – BK 9
PAPER 1

No.	Mark Scheme	Σ Marks
1	(a) one to many 1	2
	(b) $\{-2, 4, 5, 6\}$ 1	
2	$h = 2$ and $k = 3$ 3	3
	$h = 2$ atau $k = 3$ B2	
	$\frac{2x - 3}{2 - x}$ atau $\frac{2x + k}{h + x}$ B1	
3	$x = -2$ 3	3
	$5(3x + 6) = 3(-2) + 6$ B2	
	$5(3x + 6)$ atau $3(-2) + 6$ B1	
4	-24 2	2
	$6(-2) - p = 3(-2)^2$ B1	
5	lebar = 0.2 dan panjang = 0.12 4 terima unit(m atau cm)	4
	$x = 0.2$ atau 0.12 B3	
	$x(0.32 - x) = 0.024$ B2	
	$2x + 2y = 0.64$ atau $xy = 0.024$ B1	
6	(a) -1 1	4
	(b) 5 1	
	(c) $x = 1$ 1	

7	$3^x \left(1 - \frac{1}{3^2}\right) = 24$ $3^x \times 1 - 3^x \times 3^{-2} = 24$	<p>3</p> <p>B2</p> <p>B1</p>	3
8	$\frac{2x+7}{x-1} = 2^3$ $\log_2 \left(\frac{2x+7}{x-1} \right) = 3$	<p>3</p> <p>B2</p> <p>B1</p>	3
9	$\frac{3n+1-2m}{m} \quad \text{atau} \quad \frac{3n}{m} + \frac{1}{m} - 2 \quad [4]$ $\frac{3 \log_x 5 + 1 - 2 \log_x 3}{m}$ $\frac{\log_x 125 + \log_x x - \log_x 9}{\log_x 3}$ $\frac{\log_x \left(\frac{125x}{9} \right)}{\log_x 3}$	<p>B3 (guna 3 hukum log)</p> <p>B2 (guna 2 hukum log)</p> <p>B1 (tukar asas log)</p>	4
10	<p>(a) $z = 16$</p> <p>(b) 155</p> $\frac{5}{2} [2(41) + 4(-5)] \quad \text{OR} \quad 41+36+31+26+21 \quad \text{B1}$	<p>1</p> <p>2</p>	3
11	<p>(a) $n = 64$</p> $S_n = \frac{n}{2} [5 + 35] = 1280$ <p>(b) $d = \frac{10}{21} \quad \text{OR} \quad d = -\frac{10}{21}$</p>	<p>2</p> <p>B1</p> <p>B1</p>	3

12	<p>(a) $\frac{1}{2}$ 2</p> <p>$\frac{ar^4}{ar} = \frac{5}{8}$ <u>or</u> equivalent B1</p> <p>(b) $\frac{35}{2}$ 2</p> <p>$a = 10$ <u>and</u> $S_4 = \frac{10 \left[1 - \left(\frac{1}{2} \right)^4 \right]}{1 - \frac{1}{2}}$ B1</p>	4
13	<p>(a) $y = \frac{1}{2}x + 4$ 3</p> <p>$x + y = \frac{3}{2}x + 4$ B2</p> <p>$m = \frac{3}{2}$ <u>and</u> $c = 4$ B1</p> <p>(b) -8 1</p>	4
14	<p>(a) $1 : 2$ 2 (don't accept $\frac{1}{2}$)</p> <p>$\frac{n(2) + m(14)}{n + m} = 6$ B1</p>	2
15	<p>(a) $p = -7$ 2</p> <p>$a + b = -i + (p + 7)j$ B1</p>	4
16	<p>13 3</p> <p>$\sqrt{(-5)^2 + 12^2}$ B2</p> <p>$-5i + 12j$ B1</p>	3
17	<p>(a) $x = 90^\circ, 270^\circ$ (both) 2</p> <p>$x - 45^\circ = 45^\circ$ B1</p> <p style="text-align: center;">(Give B1 for 45)</p> <p>(b) $158 \cdot 83^\circ$ (<u>or</u> $158^\circ 50'$), $201 \cdot 17^\circ$ (<u>or</u> $201^\circ 10'$) (both) 2</p> <p>$0 \cdot 9325$ <u>or</u> $21 \cdot 17^\circ$ <u>or</u> $21^\circ 10'$ B1</p>	4

18	7.173 $AB = 10\sin(0.8 \times \frac{180}{\pi})$ $OA = 5$	<p>3</p> <p>B2</p> <p>B1</p> <p>3</p>
19	<p>(a) $h'(x) = 3kx^2 - 4x + 7$</p> <p>(b) $k = 5$ $6k(1) - 4 = 3k(-1)^2 - 4(-1) + 7$ $h''(x) = 6kx - 4$</p>	<p>1</p> <p>3</p> <p>B2</p> <p>B1</p> <p>4</p>
20	<p>$p = 4$ dan $q = -2$</p> <p>$4(-1) + p = 0$</p> <p>$\frac{dy}{dx} = 4x + p$</p>	<p>3</p> <p>B2</p> <p>B1</p> <p>3</p>
21	<p>$\frac{12}{5}$</p> <p>$3\left[\frac{3(4)}{(4)^2-1}\right] - 3\left[\frac{3(0)}{(0)^2-1}\right]$</p> <p>$3\left[\frac{3x}{x^2-1}\right]_0^4$</p> <p>$\int_0^4 g(x) dx = \frac{3x}{x^2-1}$ atau $\frac{dy}{dx} = \frac{(x^2-1)(3) - (3x)(2x)}{(x^2-1)^2}$</p>	<p>4</p> <p>B3</p> <p>B2</p> <p>B1</p> <p>4</p>
22	<p>(a) $\frac{14x+19}{5} = 15$</p> <p>(b) 12</p>	<p>4</p> <p>B1</p> <p>1</p> <p>3</p>

23	(a) 24 ${}^4P_2 \times {}^2P_2$	2 B1	4
	(b) 12 ${}^3P_3 \times 2$	2 B1	
24	$p = 12$ dan $q = 8$	3	3
	selesaikan $3p = 28 + q$ dan $5q = 28 + p$ $\frac{p}{28 + p + q} = \frac{1}{4}$ atau $\frac{q}{28 + p + q} = \frac{1}{6}$	B2 B1	
25	(a) 0.000144 ${}^{10}C_9(0.3)^9(0.7)^1 + {}^{10}C_{10}(0.3)^{10}(0.7)^0$	2 B1	4
	(b) 40 $np = 28$	2 B1	

END OF MARK SCHEME