Matematik Tambahan Ogos/September 2019



MAJLIS PENGETUA SEKOLAH MALAYSIA (MPSM) CAWANGAN KELANTAN

SPM 2019

MATEMATIK TAMBAHAN KERTAS 1

UNTUK KEGUNAAN PEMERIKSA SAHAJA

SKEMA PEMARKAHAN

3472/1 (PP) 2019 Hak Cipta MPSM Cawangan Kelantan

3472/1

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No.	Solution and Mark Scheme	Sub Marks	Total Marks
1 (a)	0.1131	1 2	3
(b)	X = 28.63	2	5
	B1 : $1.21 = \frac{X - 25}{3}$		
		2	2
2	$q = \sqrt{p}$ or equivalent	2	2
		- 19	
	B1: $\frac{4\log_p q}{\log_p p} = \frac{\log_p p}{\frac{1}{2}}$		
•	$\log_p p \qquad \frac{1}{2}$		
	2		
3 (a)	1	- 1	. 3
	$-\frac{1}{4}$		
(b)			
(0)	$0 \le f(x) \le 15$	2	•
		:	
	B1 : $f(-4) = 4(-4)+1 $		194
4	p = -2 and $q = 6$	-	
			71
	B2: $p = -2$ or $q = 6$	3	3
	$B1: \frac{y}{x^2} = px + q$	÷	
	*		
5	$r = -3$, $s = -\frac{5}{2}$ (Both)		
	-	3	3
	B2 : $r^2 = 9$ or $-rs - s = -5$		
	B1 : $r(rx-s)-s=9x-5$	-	
	$B_1 : r(r_x - s) - s - r_x - s$		
6	-3	1.5	A.C.
	$B1: \frac{dy}{dx} = 3x^2 - 3$	2	2
7	<i>q</i> = 6		
	B2: $q > \frac{16}{3}$		
		3	3
	B1: $(-8)^2 - 4(q)(3) < 0$		
8 (a)	3 <i>n</i> +1	1	1
	$m = -\frac{1}{2}$		-
(<i>b</i>)	2	2	3
	B1: x = -1 (seen)		
9 (a)	$6 \\ 1 \le q \le 11 \text{ or equivalent}$	1	

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	B1: $5+q = 16$ or $10+q = 11$		
10 (a)	$y = 9x^2$	1	
	<i>x</i> = 3		4
(b)	B2 : $x^2 = 2x + 3$ or equivalent	3	
	B1: $\frac{\log_9 x}{\log_9 3}$ or $\frac{\log_3(2x+3)}{\log_3 9}$		
	$\log_9 3$ $\log_3 9$		
11	$x = \frac{\log 8}{\log h} $ * any base	.3	3
•	B2: $h^{x} = 8$ B1: $(h^{x})^{2}$	1-11-11-11-11-11-11-11-11-11-11-11-11-1	
12 (0)		1	
	$(v-w-1)\underline{x}+w\underline{y}$ or equivalent		2
(b)	$v = \frac{3}{2}$	») * – –	. 3
	B1: $v - w - 1 = 0$ or equivalent	2	
13	16,-8 (both)		
	B2: $\sqrt{(4-h)^2 - (5)^2} = 13$	3	3
	B1: $2(2i-3j) - (hi-j)$		
14	p = 16, p = -16 (both)	1.1	
	$B2: p = \frac{8}{3}a and a = \pm 6$	3	3
2	$B1: -\left(\frac{-p}{2}\right) = a + \frac{1}{3}a or 12 = (a)\left(\frac{1}{3}a\right)$		() Car
	$B1:-\left(\frac{1}{2}\right)^{-u+\frac{1}{3}u}$ or $H^{-}(u)(3^{u})$		
15	$2x^2 + 4x + 1 = 0$		
	B2: $\alpha + \beta = -2$ and $\alpha\beta = \frac{1}{2}$	3	3
	B1: $2\alpha + 2\beta = -\frac{8}{2}$ or $2\alpha(2\beta) = \frac{4}{2}$		
	2 2		
	$V(0,-\frac{8}{t^2})$	19 83	
	1 · · · · · · · · · · · · · · · · · · ·	3	3
	B2 : $\frac{-y}{-8} = -\frac{1}{t}$ or $-\frac{8}{x} = t$ or equivalent		
	\overline{t}	3.5	
	B1 : $m_{ln'} = -\frac{1}{t}$	4	
	t t		

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4 a	•		
17 (a)	<i>q</i> < 0	1	4
(b)	$\frac{2}{\sqrt{4-q^2}}$	1	
(c)	$\frac{2}{\sqrt{4-q^2}}$ $\frac{p^2-2}{p^2} \text{ or } 1-\frac{2}{p^2} \text{ or equivalent}$ $B1: 2\left(\frac{\sqrt{p^2-1}}{p}\right)^2 -1 \text{ or equivalent}$	2	
18	97.13°, 135° (both)		6
· .	B2 : 45°, 82.87° (basic angle)	3	3
	B1: $\tan^2 x + 7 \tan x - 8 = 0$	÷	
19 (a)	$\frac{\pi}{3}$	1	
	3 25π $25m$		
(<i>b</i>)	$\frac{25\pi}{4} - \frac{25\pi}{2}$	3	4
	B2: $\frac{1}{2}(5)^2\left(\frac{\pi}{2}\right) - \frac{1}{2}(5)^2(m)$		
	B1: $\frac{1}{2}(5)^2\left(\frac{\pi}{2}\right)$ or $\frac{1}{2}(5)^2(m)$		
20 (<i>a</i>)(<i>i</i>)	2 <i>h</i> +8	1	
<i>(ii)</i>	-4	1	4
(b)	$\frac{5k^2}{2} - 4k + \frac{3}{2} \text{ or equivalent}$ B1 : $\frac{1}{10}(5t - 4)^2$	2	we take .
	B1 : $\frac{1}{10}(5t-4)^2$		

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21	x+2y=5 or equivalent		
· •	B3: $y-2 = -\frac{1}{2}(x-1)$	4	4
	B2: (1,2) seen	•	· · · · · ·
	B1: $\frac{dy}{dx} = 2x$ or kec. normal $= -\frac{1}{2}$		
22	0.34		
	B2: (0.4)(0.7) + (0.6)(0.1) B1: (0.4)(0.7) or (0.6)(0.1)	3	3
23	55	. 4	4
	B3 : <i>n</i> =11		
	B2 : $2 = 32 + (n - 1)(-3)$ B1 : $a = 32$ or $d = -3$ (dilihat / seen)	1	
	2880	3	3
24	B2 : $2 \times 3! \times 2 \times 5!$ or equivalent	5	
	B1 : 3! or 5!		
25 (a)	<i>C</i> (-30,0)	1	
<u>(</u> b)	6.6 minutes, not qualified (Both)		
	B2 : 0.11 hour	3	4
÷	B1 : $\sqrt{(60-30)^2 + (40-0)^2}$ or		
	$\sqrt{(40-0)^2 + (0-(-30))^2}$		

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