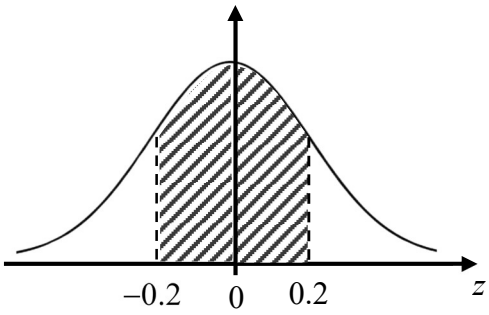
Panduan Penskoran Matematik Tambahan Kertas 1 (3472/1)
SPMRSM 2024

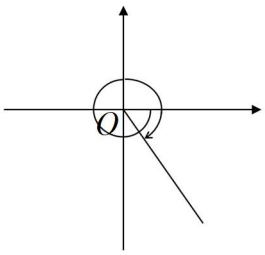
No	Skema Markah	Sub Markah	Markah
1(*a*)	$-\frac{7}{2}$	1	3
1(*b*)	5 $1 \le g(x) \le 2$	1 1	
2(*a*)	$5^x\left(5^{2y}\right)$ ab^2	1 1	5
2(*b*)	$2^{-1+r+2+s-1} = 2^{2r+4}$ $2^{r+s} = 2^{2r+4}$ $r = s-4$	1 1 1	
3(*a*)	$\log_b b + 5\log_b c = -9$ -2	1 1	5
3(*b*)(i) (ii)	30 $n > \frac{\log\frac{1}{30}}{\log 0.9}$ $n = 33$	1 1 1	

4(*a*)	$\int h(x)dx = 4(x-5)^3 \ @ \ \left[4(x-5)^3\right]_0^4$ $\left[4(4-5)^3 - 4(0-5)^3\right]$ 496	1 1 1	6
4(*b*)	$4\pi = (8)^2 \pi \times \frac{dh}{dt}$ $\frac{\pi(8)^2(12.5)}{\frac{\pi(10)^2}{\left(\frac{1}{16}\right)}}$ $t > 128$	1 1 1	
5	$\frac{y}{x^2} = ax + 4$ $b = 4$ $a = \frac{8-*4}{12-0} \ @ \ 8 = 12(a) + 4$ $a = \frac{1}{3}$	1 1 1 1	4
6(*a*)	$\frac{s}{\theta} = \frac{2\pi r}{2\pi}$ $s = r\theta$	1 1	7

6(*b*)	0.9273 @ 1.855	1	
	$A_1 = \frac{1}{2}(20)^2\left(2(3.142) - *1.855\right)$ @	1	
	$A_2 = \frac{1}{2}(20)^2(*1.855)$ @ $A_6 = \frac{1}{2}(20)^2 2(3.142)$		
	$A_3 = \frac{1}{2}(20)^2\left(\sin {}^*106.26\right)$ atau $\frac{1}{2} \times 32 \times {}^*12$ atau $2 \times \frac{1}{2} \times 16 \times {}^*12$ @	1	
	$A_4 = \frac{1}{2}(16)(8+20)$ @ $A_5 = 32 \times 8$		
	${}^*A1 + 2{}^*A4 - {}^*A2$ @ ${}^*A1 + \left[{}^*A5 - \left({}^*A_2 - {}^*A_3\right)\right]$	1	
	962.78 $\leftrightarrow$ 962.96	1	
7(*a*)	68 @ 68.26	1	
7(*b*)		1	4
	0.4207	1	
	0.1586	1	

8(a)	$t+6t+12t+8t=1$ $\frac{1}{27}$	1 1	
8(b)	${}^3C_0p^0q^3 = *\left(\frac{1}{27}\right)$ atau ${}^3C_3p^3q^0 = 8*\left(\frac{1}{27}\right)$ $\sqrt{630\times *\left(\frac{2}{3}\right)\times *\left(\frac{1}{3}\right)}$ 11.83	1 1 1	5
9(a)	$({}^8C_2\times {}^{10}C_5)$ atau $({}^8C_4\times {}^{10}C_3)$ atau $({}^8C_6\times {}^{10}C_1)$ $({}^8C_2\times {}^{10}C_5)+({}^8C_4\times {}^{10}C_3)+({}^8C_6\times {}^{10}C_1)$ 15 736	1 1 1	7
9(b)(i)	$7! = 5040$	1	
9(b)(ii)	${}^1P_1\times {}^3P_3\times 1\times {}^2P_2$ ${}^1P_1\times {}^3P_3\times 1\times {}^2P_2\times 2\times 3$ 72	1 1 1	
10	$114-36\sqrt{2} = (6-\sqrt{2})\ \times$ panjang atau setara $\frac{114-36\sqrt{2}}{6-\sqrt{2}}\times\frac{6+\sqrt{2}}{6+\sqrt{2}}$ $\frac{684+114\sqrt{2}-216\sqrt{2}-72}{36-2}$ $18-3\sqrt{2}$ 3:1	1 1 1 1 1	5

11(*a*)(i)	$8-3n$	1	9
(ii)	$T_n + T_{n+1} = -23$ @ $T_{n-1} + T_n = -23$	1	
	$8-3(6)$ @ $8-3(7)$	1	
	$-10, -13$ kedua^2 nya	1	
11(*b*)(i)	$\frac{20}{2}(1+20)$ @ $\frac{20}{2}\left[2(1)+(20-1)1\right]$	1	
	210	1	
11(*b*)(ii)	$a = 1, d = 2$	1	
	$\frac{210}{2}[2(1)+(210-1)(2)]$	1	
	44 100	1	
12(*a*)	$0 < k \leq 1$	1	4
12(*b*)	$\frac{a\underset{\sim}{i}+b\underset{\sim}{j}}{\frac{2}{5}}$ **atau** $\left\|\overrightarrow{OP}\right\| = \frac{2}{5}$	1	
	$2 * \left(\frac{2}{5}\right)$	1	
	$\frac{4}{5}$	1	

13(*a*)	 Sukuan empat	1 1	
13(*b*)	Sudut rujukan = 75.96° $75.96°, 255.96°$	1 1	
13(*c*) (i), (ii)	$\cos A = -\frac{1}{\sqrt{1+p}}$ atau $\tan B = \frac{4}{3}$ $\sec A = -\sqrt{1+p}$ $\frac{\sqrt{p}-\frac{4}{3}}{1+\sqrt{p}\left(\frac{4}{3}\right)}$ $\frac{3\sqrt{p}-4}{3+4\sqrt{p}}$	1 1 1 1	8

14(a)	$x^2 + mx + m - 1 = 0$ $(m)^2 - 4(1)(m-1) = 0$ 2	1 1 1	8
14(b)(i)	$-\frac{1}{2}\left[t^2 - 8t + \left(\frac{-8}{2}\right)^2 - \left(\frac{-8}{2}\right)^2\right]$ $-\frac{1}{2}(t-4)^2 + 8$ 14	1 1 1	
14(b)(ii)	Kes $(t-1)(t-3) \le 0$ titik ujian 0 titik ujian 2 titik ujian 4 $(^*0-1)(^*0-3) \ge 0$ | $(^*2-1)(^*2-3) \le 0$ | $(^*4-1)(^*4-3) \ge 0$ + − + $t \le 1$ 1 $1 \le t \le 3$ 3 $t \ge 3$ t @ Kes $(-t+1)(t-3) \ge 0$ titik ujian 0 titik ujian 2 titik ujian 4 $(^*0+1)(^*0-3) \ge 0$ $(^*-2+1)(^*2-3) \le 0$ $(^*-4+1)(^*4-3) \ge 0$ − + − $t \le 1$ 1 $1 \le t \le 3$ 3 $t \ge 3$ t Titik ujian mesti memenuhi semua ketaksamaan $1 \le t \le 3$	2	

15(*a*)	$Q(0, 6)$	1	8
	$\frac{1}{2}\left\|[(0)(6)+(-3)(h)+(5)(-5)+(-5)(6)]-[(6)(h)+(6)(5)+(-3)(-5)+(-5)(0)]\right\| = 68$	1	
	$-9h-100=136$ **DAN** $-9h-100=-136$	1	
	$h = 4$	1	
15(*b*)	$\sqrt{\left(x-(-5)^2+(y-(-5))^2\right)} = 2y$	1	
	$x^2-3y^2+10x+10y+50=0$	1	
	$(-5)^2-3(5)^2+10(-5)+10(5)+50=0$	1	
	$0 = 0$ **DAN** melalui $(-5,5)$ atau setara	1	