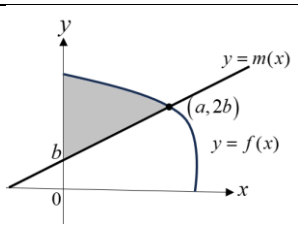
PERATURAN PEMARKAHAN
PEPERIKSAAN PERCUBAAN SPM TAHUN 2024
MATEMATIK TAMBAHAN (3472/1)
TINGKATAN 5
KERTAS 1

NO.	PERATURAN PEMARKAHAN	SUB-MARKAH	MARKAH PENUH
	BAHAGIAN A		
1 (a)	$HTP = \frac{h^3+1}{h^2}$ atau $HDP = \frac{1}{h}$ $x^2 - \left(\frac{h^3+1}{h^2}\right)x + \frac{1}{h} = 0$ $h^2x^2 - \left(h^3+1\right)x + h = 0$	K1 K1 N1	
1 (b)	$(-1)^2 - 4(k-2)(3) < 0$ $k > \frac{25}{12}$	K1 N1	**5**
2(a)		N1	
2(b)	$2n$ atau $\left[\frac{x^2}{2}\right]_1^m$ $2n - \left[\frac{m^2}{2} - \frac{1^2}{2}\right] = \frac{37}{2}$ $m = 2\sqrt{n-9}$	K1 K1 N1	**4**
3(a)	$1-2h = \pm 9$ atau $1-2k = \pm 9$ $k = -4$ $h = 5$	K1 N1 N1	

3(b)	$g^{-1}(x)=\dfrac{x-1}{m}$ ATAU setara $\dfrac{p-1-1}{m}=8$ atau setara $m=\dfrac{p-2}{8}$	K1 K1 N1	**6**
4 (a)	${}^4C_0(p)^0(q)^4=0.0081$ 70	K1 N1	**4**
4 (b)	$1-0.0081-0.0756$ 0.9163	K1 N1	
5(a)	(i) 720 cara (ii) $\dfrac{2\times 4!\times 4!}{2!\times 2!}$ 288	N1 K1 N1	**6**
5(b)	${}^7C_7\times{}^5C_3$ atau ${}^7C_6\times{}^5C_4$ atau ${}^7C_5\times{}^5C_5$ ${}^7C_7\times{}^5C_3$ + ${}^7C_6\times{}^5C_4$ + ${}^7C_5\times{}^5C_5$ 66	K1 K1 N1	
6 (a)	$3^{-n}\left(3^n5^n-3^n9^n\right)$ atau setara 5^n-9^n	K1 N1	**7**
6 (b)	$2\sqrt{x}-\sqrt{x}=\dfrac{3}{\sqrt{a}-\sqrt{b}}\times\dfrac{\sqrt{a}+\sqrt{b}}{\sqrt{a}+\sqrt{b}}$ dan $x=\dfrac{9\left(\sqrt{a}+\sqrt{b}\right)^2}{(a-b)^2}$ $h=\dfrac{9}{(a-b)^2}$	K1 N1	
6(c)	$\dfrac{e^{q-3}}{e^{-2}}=\dfrac{1}{5}$ $\ln\ e^{q-1}=\ln\left(\dfrac{1}{5}\right)$ dan $q=\ln\left(\dfrac{1}{5}\right)+1$ $p=\dfrac{1}{5}$	P1 K1 N1	

7(a)	AO = OC = CD = DO $\angle COD = \frac{\pi}{3} rad$	 N1	
7(b)	Luas sektor $AOD = \frac{1}{2} \times 10^2 \times \frac{2\pi}{3}$ atau Luas sektor $COD = \frac{1}{2} \times 10^2 \times \frac{\pi}{3}$ Luas $\Delta AOD = \frac{1}{2} \times 10^2 \times \sin 60^0$ Luas kawasan berlorek = $2\left[\frac{1}{2} \times 10^2 \times \frac{2\pi}{3} - \left(\frac{1}{2} \times 10^2 \times \frac{\pi}{3} - \frac{1}{2} \times 10^2 \times \sin 60^0\right)\right]$ 122.44 cm^2	K1 K1 K1 N1	**5**
8	$x = \frac{5+3y}{2}$ atau setara * $\left(\frac{5+3y}{2}\right)^2 - 4y^2 - y + 2 = 5$ atau setara $y = \frac{-26 \pm \sqrt{(26)^2 - 4(-7)(13)}}{2(-7)}$ atau setara $y = -0.446$ dan $y = 4.161$ $x = 1.831$ dan $x = 8.742$	P1 K1 K1 N1 N1	**5**
9(a)	$\frac{y}{x^2} = r + n\left(\frac{1}{x^2}\right)$ $r = p + 3$ atau $n = 3p$ atau $p = r - 3$ $n = 3r - 9$	K1 N1 N1	

9(b)	$q = r + (3r - 9)(2)$ $q = 7r - 18$	K1 N1	**5**
10(a)	$1 - 2(0.1469)$ 0.7062	K1 N1	
10(b)	$\frac{73.2 - \mu}{4} = 1.05$ $\mu = 69$	K1 N1	**4**
11(a)	$\overrightarrow{AB} = \overrightarrow{AO} + \overrightarrow{OB}$ atau $\overrightarrow{BC} = \overrightarrow{BO} + \overrightarrow{OC}$ atau $\overrightarrow{AC} = \overrightarrow{AO} + \overrightarrow{OC}$ dan $\overrightarrow{AB} = \lambda \overrightarrow{BC}$ atau setara $\begin{pmatrix} 1 \\ 2 \end{pmatrix} = \lambda \begin{pmatrix} -2 + m \\ 6 \end{pmatrix}$ dan $\lambda = \frac{1}{3}$ atau setara $m = 5$	P1 K1 N1	
11(b)	$\left\lvert \overrightarrow{BC} \right\rvert = \sqrt{3^2 + 6^2}$ Vektor unit dalam arah $\overrightarrow{BC} = \frac{3}{\sqrt{45}} \underset{\sim}{i} + \frac{6}{\sqrt{45}} \underset{\sim}{j}$ atau setara	K1 N1	**5**
12 (a)	$\frac{1 - \sin^2 x}{1 - \sin x}$ $\frac{(1 - \sin x)(1 + \sin x)}{1 - \sin x}$	K1 N1	
12(b)	(i) $-\frac{1}{\sqrt{1 - t^2}}$ (ii) $\frac{5}{kosx\ kos180^0 + \sin x\ \sin 180^0}$ $\frac{5}{t}$	N1 K1 N1	

12(c)	$(5\sin x-2)(2\sin x-1)=0$ $\sin x=\frac{2}{5}$ dan $\sin x=\frac{1}{2}$ $x=23.58^0,30^0,150^0,156.42^0$	K1 K1 N1	**8**
	BAHAGIAN B		
13(a)	$d=4$ $T_{17}=7+(17-1)(4)$ 71	K1 K1 N1	
13(b)	$ar^2=1405$ dan $ar^6=1700$ $\frac{1405}{r^2}=\frac{1700}{r^6}$ dan menyelesaikan $r=1.0488$ $a=1277.29$ atau 1277.30 $T_{15}=1277.29(1.0488)^{15-1}$ RM 2488.78 atau RM 2488.80	P1 K1 N1 K1 N1	**8**
14(a)	$\lim_{x\to 3}\frac{(x-3)(3+\sqrt{12-x})}{(3-\sqrt{12-x})(3+\sqrt{12-x})}$ dan $3+\sqrt{12-x}$ $3+\sqrt{12-3}$ 6	P1 K1 N1	
14(b) (i)	$-3=-3(-1)^2-2q(-1)+4$ $q=-2$	K1 N1	
14(b) (ii)	$(-1,2)$ $y-2=-3(x-(-1))$ atau setara $y=-3x-1$	P1 K1 N1	**8**

15(a)	$7x+9=x-3$ Klinik $(-2,-5)$	K1 N1	
15(b)	Nisbah jarak masjid ke papan tanda = m Nisbah jarak rumah Aimi ke papan tanda = n $\frac{0(n)+5m}{m+n}=2$ atau $\frac{9(n)+1(m)}{m+n}=\frac{29}{5}$ $m:n=2:3$	K1 N1	
15(c) (i)	$\sqrt{(x-(-1))^2+(y-4)^2}=3$ $x^2+y^2+2x-8y+8=0$	K1 N1	
15(c) (ii)	Memotong paksi- x , $y=0$: $x^2+2x+8=0$ dan $(2)^2-4(1)(8)=-28<0$ Tidak memotong paksi- x	K1 N1	**8**

PERATURAN PEMARKAHAN TAMAT