SKEMA PERMARKAHAN
KERTAS 1

NO SOALAN	SKEMA	SUB MARKAH	JUMLAH MARKAH
1	a) Banyak kepada satu	N1	**3**
	b) $0 \le x \le 3$ $2 \le f(x) \le 6$	N1 N1	
2	a) $-\log_m abc$	N1	**4**
	b) $49m^5n^c = \frac{2401}{a}m^{10+b-7}n^{4+2-1}$ $49 = \frac{2401}{a}$ *or* $5 = 3+b$ *or* $c = 4+2-1$ $a = 49,\ b = 2$ *and* $c = 5$	K1 K1 N1	
3	a) $3x+2 = \log_e 10$ OR $3x+2 = \ln 10$ $x = 0.1009$	K1 N1	**6**
	b) $\frac{\log_3(2+x)}{\log_3 9}$ (*Change base*) $(6+5x) = (2+x)^2$ $(x+1)(x-2) = 0$ $x = 2,\quad x = -1$ (rejected)	K1 K1 K1 N1	
4	a) $m_1 = -\frac{1}{8}$ atau $m_2 = 8$ atau setara Guna $m_1 \times m_2 = -1$ $\left((4(2)^3 - p(2))\left(-\frac{1}{8}\right) = -1\right)$ atau $8 = 4x^3 - px$ $p = 12$	K1 K1 N1	**6**
	b) Kamirkan y terhadap x $y = \frac{4x^4}{4} - \frac{12x^2}{2} + c$ Ganti (2, 5) ke dalam *kamiran **&*** Selesaikan untuk c $5 = (2)^4 - 6(2)^2 + c$ $c = 13$ $y = x^4 - 6x^2 + 13$	K1 K1 N1	

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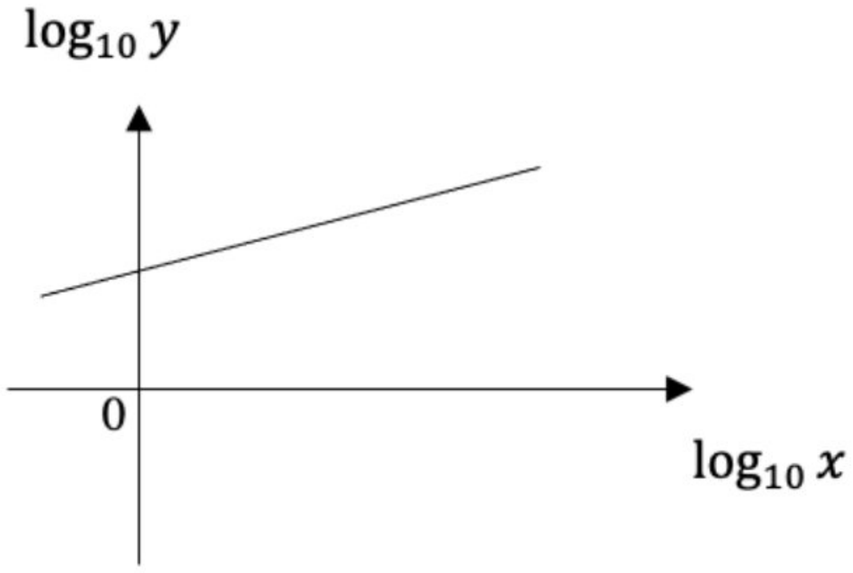
5	a) $\begin{pmatrix} 1 \\ p-1 \end{pmatrix} = \lambda \begin{pmatrix} 9 \\ 8 \end{pmatrix}$ atau setara $\frac{17}{9}$	K1 N1	**4**
	b) $\sqrt{1^2 + (p-1)^2} = \sqrt{9^2 + 8^2}$ $p^2 - 2p - 143 = 0$ $(p-13)(p+11) = 0$ *mesti ada kedua-duanya $p = 13, p = -11$ *mesti betul kedua-dua nilai	K1 N1	
6	a) $y = pq^x$ $\log_{10} y = \log_{10} p + \log_{10} q^x$ $\log_{10} y = \log_{10} q$ (x) + $\log_{10} p$ $\log_{10} q = -\frac{3}{7}$ or $\log_{10} p = 3$ q = 0.3728 and p = 1000	P1 K1 N1	**4**
	b) Lukiskan graf $\log_{10} y$ kepada $\log_{10} x$ $\log_{10} y = \log_{10} x$ (b) + $\log_{10} a$ $\log_{10} a$ = penggal pada paksi-lg y b = kecerunan garis lurus itu atau 	N1	
7	a) $\frac{4}{9}\pi$ rad atau 1.396 rad	N1	**7**
	b) $x + x + x(\frac{4}{9}\pi) = 33.97$ $x = 10$ $\frac{1}{2}$ (10)(10) $sin80$ atau 0.4924 $(10)^2$ $\frac{1}{2}$ $(y)^2$ $(\frac{4}{9}\pi)$ atau $0.698y^2$ $\frac{1}{2}$ (10)(10) $sin80 - \frac{1}{2}$ $(y)^2$ $(\frac{4}{9}\pi) = 15.03$ atau $0.4924\ (10)^2 - 0.698y^2 = 15.03$ atau setara $y = 7$	K1 N1 K1 K1 K1 N1	

8	a) $X = \{0, 1, 2, 3, 4\}$	N1	
	b) i) $P(X = 4) = 1 - 0.959$	K1	
	$^4C_4 p^4 q^0 = 0.041$	K1	
	$p^4 = 0.041$		
	$p = 0.45$	N1	**7**
	ii) Min $= 4 \times 0.45$		
	$= 1.8$	N1	
	Varians $= 4 \times 0.45 \times 0.55$		
	$= 0.99$	N1	
	Nota: Markah K1 diberi di salah satu rumus min atau varians.		
9	$P(\frac{40-45}{9.5} < Z < \frac{k-45}{9.5}) = 0.1025$		
	$z = -0.248$	K1	
	$-0.248 = \frac{k-45}{9.5}$	K1	**3**
	$k = 42.644$	N1	
10	(a) (i) $^{12}P_4 \times {}^8C_6$ atau $^{12}C_4 \times 4! \times {}^8C_6$	K1	
	$= 332\,640$	N1	
	(b) (ii) $^7P_2 \times {}^5P_2 \times {}^8C_6$ atau $^7C_2 \times 2! \times {}^5C_2 \times 2! \times {}^8C_6$	K1	
	$= 23520$	N1	**6**
	(c) $^2P_2 \times (9-1)!$ atau $7! \times {}^8C_1 \times 2!$ atau setara	K1	
	$= 80\,640$	N1	
11	$(23 - 3\sqrt{5})\pi = \pi(3 + \sqrt{20})^2 h$	P1	
	Nampak mana-mana satu pengembangan surd: $-3 \times \sqrt{20}$ atau $-3 \times 2\sqrt{5}$ atau $-6 \times \sqrt{4 \times 5}$ atau $-6 \times 2\sqrt{5}$ atau $6\sqrt{20}$ atau $12\sqrt{5}$ atau $-138 \times \sqrt{4 \times 5}$ atau $-138 \times 2\sqrt{5}$ atau $-138 \times 2\sqrt{5}$ atau $276 \times \sqrt{5}$ atau $363\sqrt{5}$ atau $-138\sqrt{20}$ atau setara	K1	**5**
	$\frac{23-3\sqrt{5}}{29+6\sqrt{20}} \times \frac{29-6\sqrt{20}}{29-6\sqrt{20}}$ *or* $\frac{23-3\sqrt{5}}{29+12\sqrt{5}} \times \frac{29-12\sqrt{5}}{29-12\sqrt{5}}$	K1	
	$\frac{667-138\sqrt{20}-87\sqrt{5}+18\sqrt{100}}{841-36(20)}$ *or* $\frac{667-276\sqrt{5}-87\sqrt{5}+180}{841-144(5)}$	K1	
	$h = 7 - 3\sqrt{5}$	N1	

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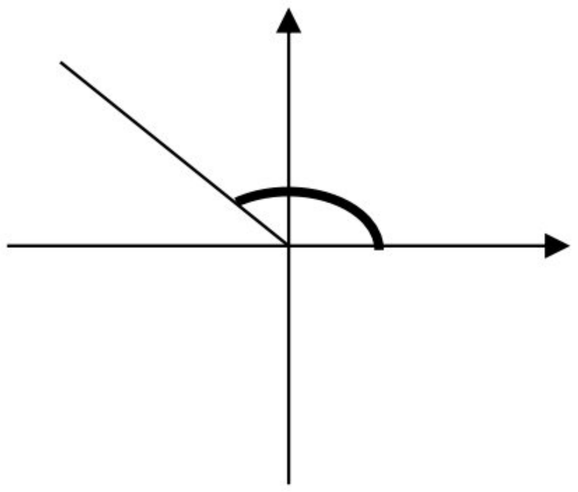
12	a) $S_n = a + (a+d) + (a+2d) + \cdots + [a+(n-2)d)] + [a+(n-1)d]$ *or* $S_n = [a+(n-1)d] + [a+(n-2)d] + \cdots + (a+2d) + (a+d) + a$ Atau (hasil tambah *n* sebutan pertama ditulis dengan terbalikkan susunan) $2S_n = [2a+(n-1)d] + [2a+(n-1)d] + \cdots + [2a+(n-1)d)]$ $2S_n = n[2a+(n-1)d]$ dan lihat/ and $S_n = \frac{n}{2}[2a+(n-1)d]$	K1 K1 N1	**9**
	b) $S_n = \frac{n}{2}[2(5)+(n-1)4]$ $= 2n^2 + 3n$	K1 N1	
	c) $2n^2 + 3n = 2277$ $2n^2 + 3n - 2277 = 0$ $(n-33)(2n+69) = 0$ $n = 33$ $T_{33} = 5 + 32(4) = 133$ atau $\frac{33}{2}[5+x] = 2277$ $x = 133$	K1 N1 K1 N1	
13	a) i) $\cos\alpha\cos\beta - \sin\alpha\sin\beta = \frac{1}{4}$ $\frac{3}{4}$ ii) $\cos\alpha\cos\beta + \sin\alpha\sin\beta$ $\frac{5}{4}$	 K1 N1 K1 N1	**8**
	b) $4\sin\theta\cos\theta = \sqrt{2}$ $\sin 2\theta = \frac{\sqrt{2}}{2}$ $2\theta = \sin^{-1}(\frac{\sqrt{2}}{2})$ $2\theta = 45°, 135°, 405°, 495°$ $\theta = 22.5°, 67.5°, 202.5°, 247.5°$	K1 K1 N1	
	c) 	P1	

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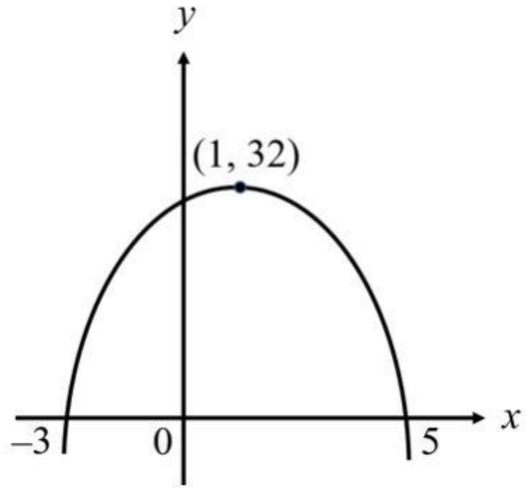
14	a) $(h-1)^2-4(2)(2k^2)=0$ $h=1\pm 4k$	K1 N1	**8**
	b) i) $-2\left(x^2-2x+\left(\frac{-2}{2}\right)^2-\left(\frac{-2}{2}\right)^2\right)+30$ atau setara $-2(x-1)^2+32$ $(1,32)$ **Nota:** K0N0 bila guna rumus $f(x)=(x+\frac{b}{2a})^2+\frac{b^2}{4a}+c$ b) ii) $-2(x-5)(x+3)$  Bentuk graf Punca-punca dan titik maksimum dilabel	K1 N1 N1 N1 P1 P1	
15	a) $-2\times m_{BC}=-1$ atau $(-2)\left(-\frac{3}{\beta}\right)=-1$ -6	K1 N1	**8**
	b) $(-6,15)$	N1	
	c) $\frac{1}{2}\lvert[-6(3)+0(0)+(-6)(15)]-[0(15)+(-6)(3)+(-6)(0)]\rvert$ 45	K1 N1	
	d) $\sqrt{(x-0)^2+(y-3)^2}$ atau $\sqrt{(-6-0)^2+(0-3)^2}$ $\sqrt{(x-0)^2+(y-3)^2}=\sqrt{(-6-0)^2+(0-3)^2}$ atau $\sqrt{(x-0)^2+(y-3)^2}=\sqrt{45}$ atau $x^2+y^2-6y+9=45$ atau setara $x^2+y^2-6y-36=0$	K1 K1 N1	

PEMARKAHAN TAMAT

Selamat mengulangkaji dari telegram@soalanpercubaanspm

Matematik Tambahan K1 Sabah 2023

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