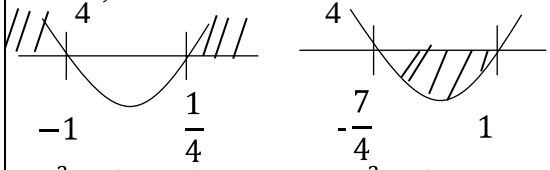
PERATURAN PEMARKAHAN

PROGRAM PENINGKATAN PRESTASI AKADEMIK

PERCUBAAN SIJIL PELAJARAN MALAYSIA 2019

MATEMATIK TAMBAHAN KERTAS 1 (SET 1)

No	Solution and Marks Scheme	Sub Marks	Total Marks
1.	70 $^8C_4$	2 B1	2
2	a) $\{4, 16\}$ b) Not a function	1 1	2
3.	$m + n = 5$ $\left(\frac{m+n}{2}, \frac{5+2}{2}\right) = \left(\frac{4+1}{2}, \frac{4+3}{2}\right)$	2 B1	2
4	a) 3 b) $k = 10$ $g^{-1}(x) = x - 4$ or $g(x) = k$	1 2 B1	3
5	The dimension of the land are 30 and 60 or 30x60 $(y-30)(y+60) = 0$ $y(y+30) = 1800$	3 B2 B1	3
6	a) $POR = -4$ $a + (-a) = -(q + 2)$ b) $p:q = 3:4$ $(3q)^2 - 4(p)(4p) = 0$	2 B1 2 B1	4
7	(a) $x = 6$ (b) $f(x) = -\frac{1}{2}(x-6)^2 + 3$ $a = -\frac{1}{2}$ $-15 = a(0-6)^2 + 3$	1 3 B2 B1	4

No	Solution and Marks Scheme	Sub Marks	Total Marks
8	$\frac{1}{4} < x < 1$, $-\frac{7}{4} < x < -1$ $x > \frac{1}{4}$, $x < -1$ or $-\frac{7}{4} < x < 1$ or  $4x^2 + 3x > 1$ or $4x^2 + 3x < 7$	3 B2 B1	3
9	$m = \frac{1}{4}, n = 1.262$ $\log_{10} 3^n = \log_{10} 4$ or $\frac{4}{m} = (3^n)^2$ $3^n = \frac{1}{m}$ or equivalent $4 = m(3^n) + 3$ or $7 = m(9^n) + 3$	4 B3 B2 B1	4
10	$\frac{1}{3}$ $3x^3 = \frac{1}{9}$ $2\log_3 x + \log_3 3x = -2$	3 B2 B1	3
11.	(a) 3 $(2p+10)-(p+9)=(7p-1)-(2p+10)$ (b) 48 $S_3 = \frac{3}{2}[2(12) + 2(4)]$ or $S_3 = 12 + 16 + 20$	2 B1 2 B1	4
12.	(a) 2 $a\left(\frac{1}{8}\right)^2 = \frac{1}{32}$ $r^2 = \frac{\left(\frac{1}{2048}\right)}{\left(\frac{1}{32}\right)}$ (b) $\frac{1}{8}$	3 B2 B1 1	4

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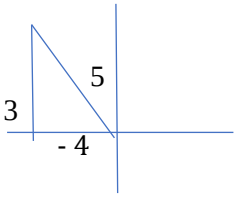
13.	$y = \frac{(x^2+3)^2}{4}$ $\sqrt{y} = \frac{1}{2}x^2 + \frac{3}{2}$ *Seen* $\frac{1}{2}$ *or* $\frac{3}{2}$	3 B2 B1	3
14	(a) 1.571 (b) 9.548 $15 = r\,(1.571)$	1 2 B1	3
15	-7 $\frac{\left(-\frac{3}{4}\right)-1}{1+\left(-\frac{3}{4}\right)(1)}$ Seen 3 or 	3 B2 B1	3
16.	p = -13 and 19 18-6 p = 96 or 18 –6 p = - 96 $\frac{1}{2}\lvert 1(8)+4(6)+p(2)-2(4)-8(p)-6(1)\rvert = 48$ or 120 000÷2500 or 48	3 B2 B1	3
17	(a) $\begin{pmatrix} \frac{5}{13} \\ -\frac{12}{13} \end{pmatrix}$ or $\frac{5}{13}\boldsymbol{i} - \frac{12}{13}\boldsymbol{j}$ $\sqrt{5^2+(-12)^2}$ or 13	2 B1	2
	(b) -7 $\begin{pmatrix} 5+k+2 \\ -9 \end{pmatrix} = \lambda\begin{pmatrix} 0 \\ 1 \end{pmatrix}$ or $7 + k = 0$	2 B1	2

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18	$m = \frac{1}{2}$ and $n = 4$ $2m + n - 5 = 0$ or $4 - n = 0$ $(2m + n - 5)\,\boldsymbol{x} = (4 - n)\,\boldsymbol{y}$	3 B2 B1	3
19	54π $2\pi r \times 3$ $2\pi r$	3 B2 B1	3
20	$\frac{dy}{dx} = -\frac{6}{x^2} + 1$ $-6x^{-2}$ or 1 seen $y = \frac{6 - 5x + x^2}{x}$	3 B2 B1	3
21	(a) $\frac{5}{2}$ (b) -1 $[3(4) - 3]$ or 9 or 10	1 2 B1	3
22.	36 3^2 seen 26	1 2 B1	3
23.	2.786 $\frac{3^2 + 8^2 + 2^2 + 9^2 + 4^2}{5} - (5.2)^2$ or 7.76 $\frac{(\alpha+2) + (2\alpha+6) + (\alpha+1) + (2\alpha+7) + (\alpha+3)}{5} = 5.2$ or $\alpha = 1$ $\frac{(\alpha+2) + (2\alpha+6) + (\alpha+1) + (2\alpha+7) + (\alpha+3)}{5}$	4 B3 B2 B1	4
24.	(a) $\frac{1}{4}$ $\left(\frac{1}{4} \times \frac{1}{3}\right)3$ (b) $\frac{1}{4}$ $\left(\frac{3}{4} \times \frac{1}{3}\right)$	2 B1 2 B1	4

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25	(a) $h = 0.464$	1	3
	(b) $h = 1.017$	2	
	$P(Z > h) + P(Z < -h) = 0.3092$ or $\frac{0.3092}{2}$ or 0.1546	B1	