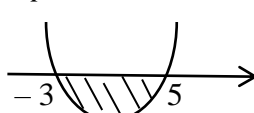


PERATURAN PERMARKAHAN ADDITIONAL MATHEMATICS PAPER 1

NO	MARKING SCHEME	MARKS	FULL MARKS
1	a) R (no multiple answer) b) $3\underline{i} + 3\underline{j}$ (no multiple answer)	1 1	2
2	19 $\begin{pmatrix} 1+h \\ 5 \end{pmatrix} = \lambda \begin{pmatrix} -4 \\ -1 \end{pmatrix}$ or equivalent $\overrightarrow{PQ} = \begin{pmatrix} -4 \\ -1 \end{pmatrix}$ and $\overrightarrow{QR} = \begin{pmatrix} 1+h \\ 5 \end{pmatrix}$ or equivalent	3 B2 B1	3
3	$p = 2 - 2k$ $-2k + 1 - p = -1$ $\frac{dy}{dx} = -2x + 1 - p$	3 B2 B1	3
4	$\frac{17}{4}$ $[\frac{1}{3}h - (-5)h] - [6 + 6] = \frac{32}{3}$ $h \left[\frac{3-x}{x+1} \right]_{-2}^2$ or $[3x]_{-2}^2$	3 B2 B1	3
5	$n = 3 - m$ $5^m = 5^{3-n}$ or equivalent $24(5^m)$	3 B2 B1	3
6	$\frac{w-u}{4uw}$ $\frac{1}{4u} - \frac{1}{4w}$ $\frac{\log_5 x}{\log_5 25}$ or $\frac{\log_5 \sqrt{y}}{\log_5 25}$ or $\log_5 x = \frac{1}{2u}$ or $\log_5 y = \frac{1}{w}$	3 B2 B1	3
7	$y = \left \frac{1}{2} \tan ax \right $ $y = \frac{1}{2} \tan ax$, $a = \text{any number}$ (no multiple answer)	2 B1	2
8	$9.74^\circ, 80.27^\circ, 189.74^\circ, 260.27^\circ$ Seen 9.74° and 80.27° $\sin 2x$ seen	3 B2 B1	

NO	MARKING SCHEME	MARKS	FULL MARKS
9.	a) $W(t) = 40 + 6t$ or $W : t \rightarrow 40 + 6t$ b) Khairul did not qualify because he only manages to achieve 94 kg in 9 months (must seen 94 kg or weight < 100 kg) 94 kg	1 2 B1	3
10	a) $-\frac{2}{3}$ $g^{-1}(x) = \frac{3-x}{2}$ or $5 = 3 - 2(3m + 1)$ b) $q = \frac{4p-1}{2}$ $p + 1 = 5p - 2q$	2 B1 1 B1	4
11	$-3 < p < 5$  $(1-p)^2 - 4(2)(2) < 0$ $2x^2 + x - 7 = px - 9$	4 B3 B2 B1	4
12	$p = 2\sqrt{3-q}$ $\frac{p^2}{4} = 3 - q$ $\alpha + \beta = \frac{p^2}{2}$ or $\alpha\beta = \frac{1}{2}$ or $\frac{\alpha+\beta}{2} = \frac{p^2}{4}$ or $\frac{\alpha\beta}{4} = \frac{1}{8}$	3 B2 B1	3
13	0 $a = -5d$ $a + 11d = \frac{12}{2}[2a + 11d]$	3 B2 B1	3
14	(a) $\frac{1}{8}$ $32\left(1 - \frac{1}{2^8}\right) - 32\left(1 - \frac{1}{7}\right)$ (b) 32	2 B1 1	3
15	$y = \left \frac{4}{3}(x-3)^2 - 4\right $ $8 = 9a - 4$ or $a = \frac{4}{3}$ $y = a(x-3)^2 - 4$	3 B2 B1	3

NO	MARKING SCHEME	MARKS	FULL MARKS
16	550 or 549.85 $\frac{1}{2}(25^2)(1.760)$ or $\frac{1}{2}(25^2)(\frac{14\pi}{25})$ $14p = 25q$ $2\pi r = 14\pi$	4 B3 B2 B1	4
17	$y = \frac{2}{3}x^3 + \frac{5x^2}{2} - \frac{5}{2}$ $y = \frac{2}{3}x^3 + \frac{5x^2}{2} + c$ or $k = 2$ $\frac{dy}{dx} = 3$	3 B2 B1	3
18	$k = 2h + 3$ $\frac{k-3}{3h-0} = \frac{2}{3}$ or $-\frac{3}{2}\left(\frac{k-3}{3h-0}\right) = -1$ $m_{BC} = \frac{2}{3}$ or $m_{BC} = \frac{k-3}{3h-0}$	3 B2 B1	3
19	(a) $m = \frac{1}{2}$ $y + x = \frac{1}{2}x^2 + \frac{1}{2} + \frac{3}{4}k$ (b) $\frac{1}{2} + \frac{3}{4}k$	2 B1 1	3
20	(a) $p = \frac{2k}{3} - 3$ $\frac{1+3+3p+2p+6+4p+2+15}{6} = k$ (b) $3p^2 + 3p$ $9\left[\frac{p^2+p}{3}\right]$	2 B1 2 B1	4
21	(a) 0 (b) $\frac{3}{14}$ $\frac{3}{7} - \frac{1}{2}$	1 2 B1	3

NO	MARKING SCHEME	MARKS	FULL MARKS
22	(a) 15120 (b) $\frac{1}{3}$ $\frac{5040}{15120}$ ${}^3P_1 \times {}^8P_4$ or $3 \times 8 \times 7 \times 6 \times 5$	2 B1 2 B1	4
23	(a) 30 (b) $k = 16$ $23.625 = 20.5 + \left(\frac{k+30-18}{k}\right) 10$ $20.5 \rightarrow$ lower boundary seen	1 B3 B2 B1	4
24	$36.95 \times 36.95 \times 18.48$ or $y = 18.48$ and $x = 36.95$ $y = \frac{1024}{36.95} - \frac{36.95}{4}$ or $\frac{dV}{dx} = 1024 - \frac{3}{4}x^2 = 0$ $y = \frac{1024}{x} - \frac{x}{4}$ or $V = 1024x - \frac{x^3}{4}$ $A = x^2 + 4xy = 4096$	4 B3 B2 B1	4
25	$S = 14.84$ $\frac{60 - 70}{S} = -0.674$ $P\left(Z > \frac{60-70}{\sigma}\right) = 0.7499$	3 B2 B1	3