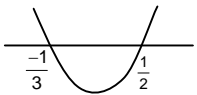


Soalan	Penyelesaian dan Peraturan Pemarkahan	Markah Sub	Markah Penuh
1 (a)	many to many	1	2
(b)	{r, s, w}	1	
2 (a)	$5 - 6x$	2	3
(b)	B1: $y = \frac{5-x}{6}$ or equivalent -7	1	
3	$a = 2$, $b = -13$ B2: $a = 2$ <i>or</i> $b = -13$ B1: $2x^2 + 8x - 5 = a(x+2)^2 + b$ or equivalent	3	3
4	1.758 and -0.7583 . B3: 1.758 or -0.7583 . B2: $\frac{-(-3) \pm \sqrt{(-3)^2 - 4(3)(-4)}}{2(3)}$ B1: $3x^2 - 3x - 4 = 0$	4	4
5	-2 B1 : $p\left(\frac{1}{p}\right)^2 - 3p\left(\frac{1}{p}\right) + 6 = 3\left(\frac{1}{p}\right) + 4$	2	2
6	$\frac{-1}{3} \leq x \leq \frac{1}{2}$ B2:  B1: $6x^2 - x - 1 \leq 0$	3	3
7 (a)	$p = -1$ and $a = -1$ B1: $p = -1$ or $a = -1$	2	4
(b)	$f(x) = (x-1)^2 + 2$ or equivalent B1: $3 = a(x-1)^2 + 2$ or $a = 1$	2	

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Soalan	Penyelesaian dan Peraturan Pemarkahan	Markah Sub	Markah Penuh
8	$x = -\frac{4}{3}$ B2: $3x = -4$ B1: $3^{3x} = 3^{-4}$ or equivalent	3	3
9	$\frac{1}{2}$ B2: $(2x-1)(x+1) = 0$ B1: $\frac{2x+1}{x} = 2x+3$	3	3
10 (a)	7 B1: $(m+3) - (m-3) = (2m+2) - (m+3)$	2	4
(b)	444 B1: $\frac{12}{2}(2(4)+11(6))$	2	
11 (a)	$x = 0.96 \quad y = 0.0096 \quad z = 0000.96$	1	4
(b)	0.01	1	
(c)	$\frac{2}{3}$ B1: $\frac{0.96}{1-0.01}$	2	
12	$r = -2$ and $a = 3$ $r = -2$ or $a = 3$ B2 : $ar(1+r) = 6$ or $ar^2(1+r) = 6$ B1 : $ar + ar^2 = 6$ or $ar^2 + ar^3 = -12$	4	4

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Soalan	Penyelesaian dan Peraturan Pemarkahan	Markah Sub	Markah Penuh
13	$k = 5$ B1: $-\frac{1}{5}(k) = -1$	2	2
14 (a)	$\log y = 3 \log x + \log p$	1	4
(b)	$p = 100$ <u>and</u> $q = 11$ B2: $p = 100$ <u>or</u> $q = 11$ B1: $\log p = 2$ <u>or</u> $\frac{q-2}{3-0} = 3$	3	
15 (a)	$\begin{pmatrix} 3 \\ 4 \end{pmatrix}$ B1: $\overline{AB} = \overline{AO} + \overline{OB}$ <u>or</u> $\begin{pmatrix} -2 \\ 1 \end{pmatrix} + \begin{pmatrix} 5 \\ 3 \end{pmatrix}$	2	4
(b)	$\frac{1}{5} \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ B1: $ \overline{AB} = \sqrt{3^2 + 4^2}$	2	
16	$\frac{11}{2}$ B1: $\frac{m+2}{2m-1} = \frac{3}{4}$	2	2
17	$x = 63.43^\circ, 161.56^\circ, 243.43^\circ, 341.56^\circ$ <u>or</u> $63^\circ 26', 161^\circ 34', 243^\circ 26', 341^\circ 34'$ B3: $\tan x = -\frac{1}{3}, \tan x = 2$ B2: $(3 \tan x + 1)(\tan x - 2) = 0$ B1: $3(\tan^2 x + 1) - 5 \tan x - 5 = 0$	4	4

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Soalan	Penyelesaian dan Peraturan Pemarkahan	Markah Sub	Markah Penuh
18	32 B2 : $12 + 16 + 2 + 2$ B1 : $s_{PQ} = 2(6)$	3	3
19 (a)	$150(5x - 3)$ B1 : $\frac{dy}{dx} = 15(5x - 3)^2$	2	3
(b)	300	1	
20	6π or equivalent B2 : $10\pi \times 0.6$ or equivalent B1 : $\frac{dA}{dh} = \pi(24 - 2h)$	3	3
21	- 5 B3 : $2(-3) + \frac{1}{3}(9) + \left[\frac{x^2}{2}\right]_1^3$ B2 : $\int_1^3 2g(x)dx - \int_1^3 f(x)dx - \int_1^3 xdx$ B1 : $\int_1^3 2g(x)dx = 2(-3)$ or $\int_1^3 \frac{1}{3}f(x)dx = \frac{1}{3}(9)$ or $\int_1^3 xdx = \left[\frac{x^2}{2}\right]_1^3$	4	4
22 (a)	6188 B1 : ${}^{17}C_5$	2	4
(b)	1120 B1 : 8C_2 or 5C_2 or 4C_1	2	

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Soalan	Penyelesaian dan Peraturan Permarkahan	Markah Sub	Markah Penuh
23	7 B1 : $\frac{6 + p + 10 + 2p + 15 + 20}{6} = 12$	2	2
24 (a)	1.2 B1 : $Z = \frac{72 - 60}{10}$	2	4
(b)	2.28% B1 : $P\left(Z < \frac{40 - 60}{10}\right)$	2	
25	$\frac{8}{35}$ B1 : $\left(\frac{3}{5} \times \frac{1}{3} \times \frac{2}{7}\right) + \left(\frac{2}{5} \times \frac{2}{3} \times \frac{2}{7}\right) + \left(\frac{2}{5} \times \frac{1}{3} \times \frac{5}{7}\right)$	2	2

Peraturan Permarkahan Tamat