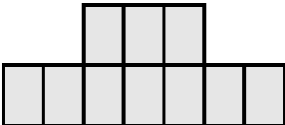


Question	Answer	Marks	AO Element	Notes	Guidance
1	$\times 3$	1			
2	$4n + 9$ oe final answer	2		B1 for $4n + k$ or $jn + 9$, $j \neq 0$, or correct answer seen then spoilt	
3(a)	-3	1			
3(b)	$27 - 5n$ oe final answer	2		B1 for $j - 5n$ or $27 - kn$, $k \neq 0$ or for $27 - 5n$ seen then spoilt	
4	$[a =] 2$ $[b =] -1$	5		M2 for correct method to find two simultaneous equations e.g. two from $a \times 1^2 + b \times 1 - 4 = -3$ $a \times 2^2 + b \times 2 - 4 = 2$ $3a + b = 2 - -3$ or M1 for 1 correct equation M1 for correctly eliminating one variable for <i>their</i> simultaneous equations A1 for $a = 2$ A1 for $b = -1$	

Question	Answer	Marks	AO Element	Notes	Guidance
5(a)	13, 16, 21	2		B1 for 2 correct terms in correct position or SC1 for 12, 13, 16	
5(b)	Yes $n = 72$	2		M1 for $n^2 + 12 = 5196$ or better or for a correct worded description for finding n or for 5184 is a square number	
6	$3n^2 + 5$ oe final answer	2		M1 for correctly finding second differences or an answer that is a quadratic sequence	
7(a)	22 29 36	3		B1 for each or B2FT for adding 7 twice or B1FT for adding 7 between terms once	
7(b)	Add 7 oe	1			
7(c)	64	1			
7(d)	$7n + 1$ oe final answer	2		M1 for $jn + 1, j \neq 0$ or $7n + k, k \neq 1$ or for $7n + 1$ oe seen but not as final answer	

Question	Answer	Marks	AO Element	Notes	Guidance
7(e)	16 nfw	2		M1 for <i>their</i> (d) = 113	
8	8 11 16	2		B1 for two correct	
9	$32 - 7n$ oe final answer	2		B1 for $32 - kn$ oe $k \neq 0$ or $j - 7n$ oe or $32 - 7n$ seen then spoil	
10	4 10 18	2		B1 for 2 correct	
11(a)	Correct pattern 4 	1			
11(b)	10 13	2		B1 for each If 0 scored, SC1 for Pattern 5 three more than <i>their</i> Pattern 4	
11(c)	$3n - 2$ oe final answer	2		B1 for $3n + j$ ($j \neq -2$) or $kn - 2$ ($k \neq 0$ or 3) or $3n - 2$ oe seen then spoil	

Question	Answer	Marks	AO Element	Notes	Guidance
11(d)	28 nfw 2	4		FT B3 for 28 nfw as answer or B3FT for <i>their n</i> correctly truncated or B2 for 28.6 to 28.7 or B2FT for $n = \frac{(84 - \text{their}(\mathbf{b}))}{\text{their}(\mathbf{a})}$ correctly evaluated or M1 for <i>their (c)</i> = 84 or $3 \times 28 - 2 = 82$ or for adding up in threes up to 82 or 85	
12(a)	Diagram 4 correctly drawn	1			
12(b)	28	1			
12(c)	$8n - 4$ oe final answer	2		M1 for $kn - 4$ ($k \neq 0$) or $8n \pm c$	
12(d)	38	2		M1 for <i>their (a)(iii)</i> = 300 provided <i>their (a)(iii)</i> is linear	

Question	Answer	Marks	AO Element	Notes	Guidance
12(e)	B2 for 686 B1 for cm^3	3		M1 for $7 \times 7 \times 14$ or $0.07 \times 0.07 \times 0.14$ or $70 \times 70 \times 140$ oe Units must be consistent with working or numerical answer	
13(a)	40 54 26 34	4		B1 for each	
13(b)	$n^2 + 3n$ or $n(n + 3)$ oe	2		B1 for a quadratic expression or for 2nd common difference 2 (at least 2 shown) or for 2 correct equations seen or for subtracting n^2	
13(c)	100	2		M1 for <i>their</i> (b) = 10300 seen	
13(d)	$[a =] \frac{1}{2}$ oe and $[b =] \frac{5}{2}$ oe	2		B1 for each or M1 for one correct equation or for 2nd difference = 1 soi (at least 2 shown)	
14	23	2		B1 for 37 or 60	

Question	Answer	Marks	AO Element	Notes	Guidance
15(a)	3, -1	2		B1 for each	
15(b)	$23 - 4n$ oe final answer	2		M1 for $k - 4n$ or $23 - jn$ ($j \neq 0$)	
15(c)	22	2		M1 for <i>their</i> (b) = -65	
16(a)	77 243	2		B1 for each	
16(b)(i)	$2n^2 + 5$ oe	2		M1 for a quadratic expression as the answer or B1 for common 2nd difference of 4	
16(b)(ii)	3^{n-1}	2		B1 for 3^k oe where k is a linear function of n	
17(a)	18 28	2		B1 for each	
17(b)	$3n + 3$ oe	2		B1 for $3n + k$ oe or $cn + 3$ oe $c \neq 0$	
17(c)	45	2		M1 for identifying 7th pattern or M1 for <i>their</i> $(3n + 3) = 24$	

Question	Answer	Marks	AO Element	Notes	Guidance
17(d)	$[a =] \frac{3}{2}$ oe $[b =] \frac{13}{3}$ oe	6		M1 for any correct substitution e.g. $\frac{1}{6} (2)^3 + 2^2 a + 2b$ A1 for one of e.g. $\frac{1}{6} + a + b = 6$ oe $\frac{8}{6} + 4a + 2b = 16$ oe $\frac{27}{6} + 9a + 3b = 31$ oe $\frac{64}{6} + 16a + 4b = 52$ oe A1 for another of the above M1 for correctly eliminating one variable from their equations A1 for $a = \frac{3}{2}$ A1 for $b = \frac{13}{3}$ oe	
18(a)	25 9 16	3		B1 for each	
18(b)(i)	$(n - 1)^2$ oe	2		B1 for any quadratic of form $[1]n^2 [+bn + c]$	

Question	Answer	Marks	AO Element	Notes	Guidance
18(b)(ii)	$n + 3$ oe	1			
18(c)	25	2		M1 for <i>their</i> $(n - 1)^2 = 576$	
18(d)(i)	$n^2 - 3n - 2$ final answer	3		M1 for <i>their</i> $(n - 1)^2 -$ <i>their</i> $(n + 3)$ oe or 2nd diff = 2 soi B1 for $n^2 - n - n + 1$ or better or $-n - 3$ or for expression of form $n^2 - 2n - n + k$ or correct expression not in simplest form	
18(d)(ii)	808 cao	2		M1 for substituting 30 in <i>their</i> (d)(i)	
					[Total: 99]