Sequence	2nd diff ÷ 2	Quadratic Part	Linear Part	Full Answer
10, 21, 38, 61, 90, … +11 +17 +23 +29 +6 +6 +6	$6 \div 2 = 3$	$3n^2$ 3 12 27 48 75 10 21 38 61 90 7 9 11 13 15	$2n$ (+5) 2 4 6 8 10 7 9 11 13 15 +2 +2 +2 +2	$3n^2 + 2n + 5$
14, 39, 76, 125, 186 +25 +37 +49 +61 +12 +12 +12	$12 \div 2 = 6$	$6n^2$ 6 24 54 96 150 14 39 76 125 186 8 15 22 29 36	$7n$ (+1) 7 14 21 28 35 8 15 22 29 36 +7 +7 +7 +7	
1 , 10, 23, 40, 61, … +9 +13 +17 +21 +4 +4 +4	$4 \div 2 = 2$	$2n^2$ 2 8 18 32 50 1 10 23 40 61 −1 2 5 8 11	−4 −1 2 5 8 11 +3	
9 , 17, 27, 39, 53, … +8 +10 +12 +14 +2 +2 +2	$2 \div 2 = 1$	n^2 1 4 9 16 25 9 17 27 39 53 8 13		

Sequence	2nd diff ÷ 2	Quadratic Part	Linear Part	Full Answer
6 , 24, 52, 90, 138, … +18 +28 +38 +48 +10 +10 +10	$10 \div 2 = 5$	$5n^2$ 6 24 52 90 138		
18 , 42, 80, 132, 198, +24 +38 +52 +66 +14 +14 +14	$14 \div 2 = 7$			
7 , 36, 83, 148, 231,				
$a + b + c$, $4a + 2b + c$,		an^2	$bn + c$	

(The last question shows why we have to half the 2nd difference to get the number before the n^2)