QUADRATIC SEQUENCE

ANSWERS

Q1-

(1) 10 14 20 28

+4 +6 +8

2 2

28 + 10 = 38

38 + 12 = 50

Q2-

(2) −4 1 10 23

+5 +9 +13

4 4

23 + 17 = 40

40 + 21 = 61

Q3-

(3) $3n^2 + 4n - 1$

for 11 th term.

$= 3(11)^2 + 4(11) - 1$

$= 363 + 44 - 1$

$= 406$

Q4-

(4)

$n^2 + 3n$

$(1)^2 + 3(1) = 4$

$(2)^2 + 3(2) = 10$

$(3)^2 + 3(3) = 18$

$(4)^2 + 3(4) = 28$

$(5)^2 + 3(5) = 40$

Q5-

(5)

$a+b+c$ →	6	12	20	30	42
$3a+b$ →	6	8	10	12	
$2a$ →	2	2	2		

$2a = 2$

$a = 1$

$3a + b = 6$

$3(1) + b = 6$

$b = 3$

$a + b + c = 6$

$1 + 3 + c = 6$

$c = 2$

$n^2 + 3n + 2$

Q6-

(6)

	1	9	21	37	57
	8	12	16	20	
	4	4	4		

$2a = 4$

$a = 2$

$3a + b = 8$

$3(2) + b = 8$

$b = 2$

$a + b + c = 1$

$2 + 2 + c = 1$

$c = -3$

$2n^2 + 2n - 3$

Q7-

(7)

16 20 26 34 44

4 6 8 10

2 2 2

$2a = 2$ $\quad 3a + b = 4$ $\quad a + b + c = 16$

$a = 1$ $\quad 3(1) + b = 4$ $\quad 1 + 1 + c = 16$

$b = 1$ $\quad c = 14$

$n^2 + n + 14$

Q8-

(8)

3 11 25 45 71

8 14 20 26

6 6 6

$2a = 6$ $\quad 3a + b = 8$ $\quad a + b + c = 3$

$a = 3$ $\quad 3(3) + b = 8$ $\quad 3 - 1 + c = 3$

$b = -1$ $\quad c = 1$

$3n^2 - n + 1$

Q9-

(9)

18 14 8 0 -10

-4 -6 -8 -10

-2 -2 -2

$2a = -2$ $\quad 3a + b = -4$ $\quad a + b + c = 18$

$a = -1$ $\quad 3(-1) + b = -4$ $\quad -1 - 1 + c = 18$

$b = -1$ $\quad c = 20$

$-n^2 - n + 20$

Q10-

(10)

−3	−2	0	3	7
	1	2	3	4
		1	1	1

$2a = 1$ $\quad 3a+b = 1$ $\quad a+b+c = -3$

$a = 0.5$ $\quad 3(0.5)+b = 1$ $\quad 0.5-0.5+c = -3$

$1.5+b = 1$ $\quad c = -3$

$b = -0.5$

$0.5n^2 - 0.5n - 3$

Q11-

(11)

5	9	15	23	33
	4	6	8	10
		2	2	2

$2a = 2$ $\quad 3a+b = 4$ $\quad a+b+c = 5$

$a = 1$ $\quad 3(1)+b = 4$ $\quad 1+1+c = 5$

$b = 1$ $\quad c = 3$

$n^2 + n + 3$

(b)

$n^2 + n + 3 = 135$

$n^2 + n - 132 = 0$

$(n+12)(n-11) = 0$

$n = -12$, $n = 11$

Hence, 135 is 11 term

Q12-

(12)

$-9 \quad 1 \quad 15 \quad 33 \quad 55$

$10 \quad 14 \quad 18 \quad 22$

$4 \quad 4 \quad 4$

$2a = 4$ $\quad 3a + b = 10$ $\quad a + b + c = -9$

$a = 2$ $\quad 3(2) + b = 10$ $\quad 2 + 4 + c = -9$

$b = 4$ $\quad c = -15$

$2n^2 + 4n - 15$

(b) $2n^2 + 4n - 15 = 271$

$2n^2 + 4n - 286 = 0$

$n^2 + 2n - 143 = 0$

$(n+13)(n-11) = 0$

$n = -13$, $n = 11$

Hence, 272 is the 11 th term.