RD Sharma Solutions Class 11 Maths Chapter 19 Ex 19.4

Arithematic Progressions Ex 19.4 Q1

(i) 50, 46, 42, ..., 10 terms

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$S_{10} = \frac{10}{2}\left[2 \times 50 + (10-1)(-4)\right]$$

$$= 320$$

(ii) 13, 5, ..., 12 terms

$$S_{12} = \frac{12}{2}\left[2 \times 1 + (12-1)2\right]$$

$$= 6 \times 24 = 144$$

(iii) $3, \frac{9}{2}, 6, \frac{15}{2}, \ldots, 25$ terms

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$S_{25} = \frac{25}{2}\left(2 \times 3 + 24 \times \frac{3}{2}\right)$$

$$= 525$$

(iv) 41, 36, 31, ..., 12 terms

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$S_{25} = \frac{25}{2}\left[2 \times 41 + (11)(-5)\right]$$

$$= 162$$

(v) $a + b, a - b, a - 3b, \ldots$ to 22 terms

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$S_{22} = \frac{22}{2}\left[2a + 2b + 21(-2b)\right]$$

$$= 22a - 440b$$

(vi) $(x-y)^2, (x^2+y^2), (x+y)^2, \ldots, x$ terms

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$= \frac{n}{2}\left[2\left(x^2 + y^2 - 2xy\right) + (x-1)(-2xy)\right]$$

$$= n\left[(x-y)^2 + (n-1)xy\right]$$

$\frac{x-y}{x+y}, \frac{3x-2y}{x+y}, \frac{5x-3y}{x+y}, \ldots$..to n terms

nth term in above sequence is $\frac{(2n-1)x - ny}{x+y}$

Sum of n terms is given by

$$\frac{1}{x+y}\left[x + 3x + 5x + \ldots + (2n-1)x - (y + 2y + 3y \ldots + ny)\right]$$

$$= \frac{1}{x+y}\left[\frac{n}{2}(2x + (n-1)2x) - \frac{n(n+1)y}{2}\right]$$

$$= \frac{1}{\ldots}$$

$$= \frac{}{2(x+y)}\left[2n^2x - 2n^2y - ny\right]$$

Arithematic Progressions Ex 19.4 Q2

(i) $2 + 5 + 8 + \ldots + 182.$

a_n term of given A.P is 182

$a_n = a + (n-1)d = 182$

$\Rightarrow \quad 182 = 2 + (n-1)3$

or $\quad n = 61$

Then,

$$S_n = \frac{n}{2}[a + l]$$

$$= \frac{61}{2}[2 + 182]$$

$$= 61 \times 92$$

$$= 5612$$

(ii) $101 + 99 + 97 + \ldots + 47$

a_n term of A.P of n terms is 47.

$\therefore \quad 47 = a + (n-1)d$

$47 = 101 + (n-1)(-2)$

or $\quad n = 28$

Then,

$$S_n = \frac{n}{2}[a + l]$$

$$= \frac{28}{2}[101 + 47]$$

$$= 14 \times 148$$

$$= 2072$$

(iii) $(a-b)^2 + \left(a^2 + b^2\right) + (a+b)^2 + \ldots + \left[(a+b)^2 + 6ab\right]$

Let number of terms be n

Then,

$a_n = (a+b)^2 + 6ab$

$\Rightarrow \quad (a-b)^2 + (n-1)(2ab) = (a+b)^2 + 6ab$

$\Rightarrow \quad a^2 + b^2 - 2ab + 2abn - 2ab = a^2 + b^2 + 2ab + 6ab$

$\Rightarrow \quad n = 6$

Then,

$$S_n = \frac{n}{2}[a + l]$$

$$S_6 = \frac{6}{2}\left[a^2 + b^2 - 2ab + a^2 + b^2 + 2ab + 6ab\right]$$

$$= 6\left[a^2 + b^2 + 3ab\right]$$

Arithematic Progressions Ex 19.4 Q3

A.P formed is $1, 2, 3, 4, \ldots, n$.
Here,

$$a = 1$$
$$d = 1$$
$$l = n$$

So sum of n terms $= S_n = \frac{n}{2}\left[2a + (n-1)d\right]$

$$= \frac{n}{2}\left[2 + (n-1)1\right]$$

$$= \frac{n(n+1)}{2}$$ is the sum of first n natural numbers.

Arithematic Progressions Ex 19.4 Q4

The natural numbers which are divisible by 2 or 5 are:

$2+4+5+6+8+10+\cdots+100 = (2+4+6+\cdots+100)+(5+15+25+\cdots+95)$ Now

$(2+4+6+\cdots+100)$ and $(5+15+25+\cdots+95)$ are AP with common difference 2 and 10 respectively.

Therefore

$$2+4+6+\cdots+100 = 2\frac{50}{2}(1+50)$$
$$= 2550$$

Again

$$5+15+25+\cdots+95 = 5(1+3+5+\cdots+19)$$
$$= 5\left(\frac{10}{2}\right)(1+19)$$
$$= 500$$

Therefore the sum of the numbers divisible by 2 or 5 is:

$$2+4+5+6+8+10+\cdots+100 = 2550+500$$
$$= 3050$$

Arithematic Progressions Ex 19.4 Q5

The series of n odd natural numbers are $1, 3, 5, \ldots, n$

Where n is odd natural number

Then, sum of n terms is

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$
$$= \frac{n}{2}\left[2(1) + (n-1)(2)\right]$$
$$= n^2$$

The sum of n odd natural numbers is n^2.

Arithematic Progressions Ex 19.4 Q6

The series so formed is $101, 103, 105, \ldots, 199$

Let number of terms be n

Then,

$$a_n = a + (n-1)d = 199$$

$$\Rightarrow \quad 199 = 101 + (n-1)2$$

$$\Rightarrow \quad n = 50$$

The sum of n terms $= S_n = \frac{n}{2}[a + l]$

$$S_{50} = \frac{50}{2}[101 + 199]$$

$$= 7500$$

The sum of odd numbers between 100 and 200 is 7500.

Arithematic Progressions Ex 19.4 Q7

The odd numbers betwwen 1 and 100 divisible by 3 are $3, 9, 15, \ldots, 999$

Let the number of terms be n then, nth term is 999.

$$a_n = a(n-1)d$$

$$999 = 3 + (n-1)6$$

$$\Rightarrow \quad n = 167$$

The sum of n terms

$$S_n = \frac{n}{2}[a + l]$$

$$\Rightarrow \quad S_{167} = \frac{167}{2}[3 + 999]$$

$$= 83667$$ Hence proved.

Arithematic Progressions Ex 19.4 Q8

The required series is $85, 90, 95, \ldots, 715$

Let there be n terms in the A.P

Then,

$$n\text{th term} = 715$$

$$715 = 85 + (n-1)5$$

$$n = 127$$

Then,

$$S_n = \frac{n}{2}[a + l]$$

$$S_{127} = \frac{127}{2}[85 + 715]$$

$$= 50800$$

Arithematic Progressions Ex 19.4 Q9

The series of integers divisble by 7 between 50 and 500 are

$$56, 63, 70, \ldots, 497$$

Let the number of terms be n then, nth term = 497

$$a_n = a + (n-1)d$$

$\Rightarrow$ $497 = 56 + (n-1)7$

$\Rightarrow$ $n = 64$

The sum $S_n = \frac{n}{2}[a + l]$

$\Rightarrow$ $S_{64} = \frac{64}{2}[56 + 497]$

$$= 32 \times 553$$

$$= 17696$$

Arithematic Progressions Ex 19.4 Q10

All even integers will have common difference = 2

$\therefore$ A.P is $102, 104, 106, \ldots, 998$

$$t_n = a + (n-1)d$$

$$t_n = 998, a = 102, d = 2$$

$$998 = 102 + (n-1)(2)$$

$$998 = 102 + 2n - 2$$

$$998 - 100 = 2n$$

$$2n = 898$$

$$n = 449$$

S_{449} can be calculated by

$$S_n = \frac{n}{2}[a + l]$$

$$= \frac{449}{2}[102 + 998]$$

$$= \frac{449}{2} \times 1100$$

$$= 449 \times 550$$

$$= 246950$$

Arithematic Progressions Ex 19.4 Q11

The series formed by all the integers between 100 and 550 which are divisible by 9 is

$$108, 117, 123, \ldots, 549$$

Let there be n terms in the A.P then, the nth term is 549

$$549 = a + (n-1)d$$

$$549 = 108 + (n-1)9$$

$\Rightarrow$ $n = 50$

Then,

In the given series $3+5+7+9+\dots$ to $3n$

Here,

$a = 3$

$d = 2$

Number of terms $= 3n$

The sum of n term is

$$S_n = \frac{n}{2}\left[2a+(n-1)d\right]$$

$$\Rightarrow \quad S_{3n} = \frac{3n}{2}\left[6+(3n-1)2\right]$$

$$= 3n(2n+3)$$

Arithematic Progressions Ex 19.4 Q13

The first number between 100 and 800 which on division by 16 leaves the remainder 7 is 112 and last number is 791.

Thus, the series so formed is 103, 119, ..., 791

Let number of terms be n, then

nth term $= 791$

Then,

$$a_n = a+(n-1)d$$

$$\Rightarrow \quad 791 = 103+(n-1)16$$

$$\Rightarrow \quad n = 44$$

Then, sum of all terms of the given series is

$$S_{43} = \frac{44}{2}\left[103+791\right]$$

$$= \frac{44\times 894}{2}$$

$$= 19668$$

Arithematic Progressions Ex 19.4 Q14

(i) $25+22+19+16+...+x=115$

Here, sum of the given series of say n terms is 115

So, the nth term = x

Here, $a = 25$ and $d = 22 - 25 = -3$

$\therefore \quad a_n = a + (n-1)d$

$\Rightarrow \quad x = 25 - 3(n-1)$

$\Rightarrow \quad x = 28 - 3n \qquad$ ---(i)

The sum of n terms

$$S_n = \frac{n}{2}[a+l]$$

$\Rightarrow \quad 115 = \frac{n}{2}[25+28-3n]$

$\Rightarrow \quad 230 = 53n - 3n^2$

$\Rightarrow \quad 3n^2 - 53n - 230 = 0$

$\Rightarrow \quad 3n^2 - 30n - 23n - 230 = 0$

$\Rightarrow \quad n = 10$ or $\frac{23}{3}$

But n can't be function

$\therefore \quad n = 10 \qquad$ ---(ii)

From (i) and (ii)

$$x = 28 - 3n$$
$$= 28 - 3(10)$$
$$= -2$$
$$x = -2$$

(ii) $1+4+7+10+\ldots+x = 590$

Here, $a = 1$

$d = 4-1 = 3$

Let there be n terms so the nth term $= x$

$\Rightarrow \quad x = 1+(n-1)3 \quad\quad [\because a_n = a+(n-1)d]$

$\Rightarrow \quad x = 3n-2 \quad\quad$ ---(i)

and

$S_n = 590 \quad\quad$ [Given]

$\Rightarrow \quad \frac{n}{2}[a+l] = 590$

$\Rightarrow \quad \frac{n}{2}[1+3n-2] = 590 \quad\quad [\because l = x = 3n-2]$

$\Rightarrow \quad 3n^2 - n - 1080 = 0$

$\Rightarrow \quad 3n^2 - 60n + 59n - 1080 = 0$

$\Rightarrow \quad 3n(n-20) + 59(n-20) = 0$

$\Rightarrow \quad n = 20 \quad\quad$ ---(ii)

From (i) and (ii)

$x = 3n-2$

$= 3(20)-2$

$= 58$

$x = 58$

Arithematic Progressions Ex 19.4 Q15

Sum first n terms of the given AP is

$S_n = 3n^2 + 2n$

$S_{n-1} = 3(n-1)^2 + 2(n-1)$

$a_n = S_n - S_{n-1}$

$a_n = 3n^2 + 2n - \ 3(n-1)^2 - 2(n-1)$

$a_n = 6n - 1$

$a_r = 6r - 1$

r^{th} term is $6r-1$.

Arithematic Progressions Ex 19.4 Q16

Given,

$a_1 = -14 = a + 0d$ ---(i)

$a_5 = 2 = a + 4d$ ---(ii)

Solving (i) and (ii)

$a_1 = a = -14$ and $d = 4$

Let ther be n terms then sum of there n terms = 40

$\therefore \quad S_n = \frac{n}{2}\left[2a + (n-1)d\right]$

$\Rightarrow \quad 40 = \frac{n}{2}\left[-28 + (n-1)4\right]$

$\Rightarrow \quad 4n^2 - 32n - 80 = 0$

or $\quad n = 10$ or -2

But n can't be negative

$\therefore \quad n = 10$

The given A.P has 10 terms.

Arithematic Progressions Ex 19.4 Q17

Given,

$a_7 = 10$

$S_{14} - S_7 = 17$ ---(i)

$\therefore \quad S_{14} = 17 + S_7 = 17 + 10 = 27$ ---(ii)

From (i) and (ii)

$S_7 = \frac{7}{2}\left[2a + (7-1)d\right]$ $\left[\text{Using } S_n = \frac{n}{2}\left[2a + (n-1)d\right]\right]$

$\Rightarrow \quad 10 = 7a + 21d$ ---(iii)

and

$S_{14} = \frac{14}{2}\left[2a + 13d\right]$

$\Rightarrow \quad 27 = 28a + 182d$ ---(iv)

Solving (iii) and (iv)

$a = 1$ and $d = \frac{1}{7}$

$\therefore$ The required A.P is

$1, 1 + \frac{1}{7}, 1 + \frac{2}{7}, 1 + \frac{3}{7}, \ldots, +\infty$

or $\quad 1, \frac{8}{7}, \frac{9}{7}, \frac{10}{7}, \frac{11}{7}, \ldots, \infty$

Arithematic Progressions Ex 19.4 Q18

Given,

$a_3 = 7 = a + 2d$ ---(i)

$a_7 = 3a_3 + 2$

$\therefore$ $a_7 = 3(7) + 2$ $[\because a_3 = 7]$

$= 23 = a + 6d$ ---(ii)

solving (i) and (ii)

$a = -1,\ d = 4$

Then, sum of 20 terms of this A.P

$\Rightarrow$ $S_{20} = \frac{20}{2}[2 + (20 - 1)4]$ $\left[\text{Using } S_n = \frac{n}{2}[2a + (n-1)d]\right]$

$= 10 \times 74$

$= 740$

First term is -1 common defference $= 4$, sum of 20 terms $= 740$.

Arithematic Progressions Ex 19.4 Q19

Given,

$a = 2$

$l = 50$

$\therefore$ $l = a + (n - 1)d$

$50 = 2 + (n - 1)d$

$(n - 1)d = 48$ ---(i)

S_n of all n terms is given 442

$\therefore$ $S_n = \frac{n}{2}[a + l]$

$442 = \frac{n}{2}[2 + 50]$

or $n = 17$ ---(ii)

From (i) and (ii)

$d = \frac{48}{n - 1} = \frac{48}{16} = 3$

The common difference is 3.

Arithematic Progressions Ex 19.4 Q20

Let no. of terms be 2n

Odd terms sum=24=$T_1+T_3+...+T_{2n-1}$

Even terms sum=30=$T_2+T_4+...+T_{2n}$

Subtract above two equations

nd=6

$$T_{2n}=T_1+\frac{21}{2}$$

$$T_{2n}-a=\frac{21}{2}$$

$$(2n-1)d=\frac{21}{2}$$

$$12-\frac{21}{2}=d=\frac{3}{2}$$

$$\Rightarrow n=6\times\frac{2}{3}=4$$

$$Total\ terms=2n=8$$

Subtitute above values in equation of

sum of even terms or odd terms, we get

$$a=\frac{3}{2}$$

So series is $\frac{3}{2},3,\frac{9}{2}.......$

Arithematic Progressions Ex 19.4 Q21

Let a be the first term of the AP and d is the common difference. Then

$$S_n = \frac{n}{2}(2a+(n-1)d)$$

$$n^2 p = \frac{n}{2}(2a+(n-1)d)$$

$$np = \frac{1}{2}[2a+(n-1)d]$$

$$2np = 2a+(n-1)d \qquad \text{......(1)}$$

Again

$$S_m = \frac{m}{2}(2a+(m-1)d)$$

$$m^2 p = \frac{m}{2}(2a+(m-1)d)$$

$$mp = \frac{1}{2}[2a+(m-1)d]$$

$$2mp = 2a+(m-1)d \qquad \text{......(2)}$$

Now subtract (1) from (2)

$$2p(m-n) = (m-n)d$$

$$d = 2p$$

Therefore

$$2mp = 2a+(m-1)\cdot 2p$$

$$2a = 2p$$

$$a = p$$

The sum up to p terms will be:

$$S_p = \frac{p}{2}(2a+(p-1)d)$$

$$= \frac{p}{2}(2p+(p-1)\cdot 2p)$$

$$= \frac{p}{2}(2p+2p^2-2p)$$

$$= p^3$$

Hence it is shown.

Arithematic Progressions Ex 19.4 Q22

$$a_{12} = a + 11d = -13 \qquad \text{---(i)} \qquad \text{[Given]}$$

$$s_4 = \frac{4}{2}(2a+3d) = 24 \qquad \text{---(ii)} \qquad \text{[Given]}$$

From (i) and (ii)

$d = -2$ and $a = 9$

Then,

Sum of irst 10 terms is

$$S_{10} = \frac{10}{2}[2\times 9 + (9)(-2)] \qquad \left[\text{Using } S_n = \frac{n}{2}[2a+(n-1)d]\right]$$

$$= 0$$

Sum of first 10 terms is zero.

Arithematic Progressions Ex 19.4 Q23

$a_5 = a + 4d = 30$ ---(i) [Given]

$a_{12} = a + 11d = 65$ ---(ii) [Given]

From (i) and (ii)

$d = 5$ and $a = 10$

Then,

Sum of irst 20 terms is

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$\Rightarrow \quad S_{20} = \frac{20}{2}\left[2 \times 10 + (20-1)5\right]$$

$$= 1150$$

Sum of first 20 terms is 1150.

Arithematic Progressions Ex 19.4 Q24

Here,

$$a_k = 5k + 1$$

$$a_1 = 5 + 1 = 6$$

$$a_2 = 5(2) + 1 = 11$$

$$a_3 = 5(3) + 1 = 16$$

$$d = 11 - 6 = 16 - 11 = 5$$

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$= \frac{n}{2}\left[2(6) + (n-1)(5)\right]$$

$$= \frac{n}{2}\left[12 + 5n - 5\right]$$

$$S_n = \frac{n}{2}(5n + 7)$$

Arithematic Progressions Ex 19.4 Q25

sum of all two digit numbers which when divided by 4,

yields 1 as remainder, $\Rightarrow$ all 4n+1 terms with $n \geq 3$

13,17,21,............97

$n = 22, a = 13, d = 4$

$$sum of\ terms = \frac{22}{2}\left[26 + 21 \times 4\right] = 11 \times 110 = 1210$$

Arithematic Progressions Ex 19.4 Q26

Sum of terms 25, 22, 19,......, is 116

$$\frac{n}{2}[50+(n-1)(-3)]=116$$

$$\frac{n}{2}[53-3n]=116$$

$$53n-3n^2=232$$

$$3n^2-53n+232=0$$

$$3n^2-29n-24n+232=0$$

$$n(3n-29)-8(3n-29)=0$$

$$(3n-29)(n-8)=0$$

$$\Rightarrow n=8 or \frac{29}{3}$$

n cannot be in fracti on, so n=8

last term=25-7×3=4

Arithematic Progressions Ex 19.4 Q27

Let the number of terms is n.
Now the sum of the series is:

$$1+3+5+\cdots+2001$$

Here $l=2001$ and $d=2$.
Therefore

$$l=a+(n-1)d$$

$$2001=1+(n-1)\cdot 2$$

$$2(n-1)=2000$$

$$n-1=1000$$

$$n=1001$$

Therefore the sum of the series is:

$$S=\frac{1001}{2}[2+(1001-1)2]$$

$$=1001^2$$

$$=1002001$$

Arithematic Progressions Ex 19.4 Q28

Let the number of terms to be added to the series is n.
Now $a=-6$ and $d=0.5$.
Therefore

$$-25=\frac{n}{2}[2(-6)+(n-1)(0.5)]$$

$$-50=n[-12+0.5n-0.5]$$

$$-12.5n+0.5n^2+50=0$$

$$n^2-25n+100=0$$

$$n=20,5$$

Therefore the value of n will be either 20 or 5.

Arithematic Progressions Ex 19.4 Q29

Here the first term $a = 2$. Let the common difference is d.
Now

$$\frac{5}{2}\left[2a+(5-1)d\right]=\frac{1}{4}\left[\frac{5}{2}\left[2(a+5d)+(5-1)d\right]\right]$$

$$\frac{5}{2}\left[2\cdot2+4d\right]=\frac{5}{8}\left[2\cdot2+14d\right]$$

$$10+10d=\frac{5}{2}+\frac{35}{4}d$$

$$\frac{5}{4}d=-7.5$$

$$d=-6$$

The 20^{th} term will be:

$$a+(n-1)d=2+(20-1)(-6)$$

$$=-112$$

Hence it is shown.

Arithematic Progressions Ex 19.4 Q30

$$S_{(2n+1)} = S_1 = \frac{(2n+1)}{2}\left[2a+(2n+1-1)d\right]$$

$$S_1 = \frac{(2n+1)}{2}\left[2a+2nd\right]$$

$$= (2n+1)(a+nd) \qquad \text{---(i)}$$

Sum of odd terms = S_2

$$S_2 = \frac{(n+1)}{2}\left[2a+(n+1-1)(2d)\right]$$

$$= \frac{(n+1)}{2}\left[2a+2nd\right]$$

$$S_2 = (n+1)(a+nd) \qquad \text{---(ii)}$$

From equation (i) and (ii),

$$S_1 : S_2 = (2n+1)(a+nd) : (n+1)(a+nd)$$

$$S_1 : S_2 = (2n+1) ; (n+1)$$

Arithematic Progressions Ex 19.4 Q31

Here,

$$S_n = 3n^2 \quad \text{---(i)} \quad [\text{Given}]$$

Where n is number of term

$$\therefore \quad S_n = \frac{n}{2}\left[2a + (n-1)d\right] \quad \text{---(ii)}$$

From (i) and (ii)

$$3n^2 = \frac{n}{2}\left[2a + (n-1)d\right]$$

$$6n = 2a + nd - d$$

Equating both sides

$$6n = nd$$

$$\therefore \quad d = 6 \quad \text{---(iii)}$$

and

$$0 = 2a - d$$

or $$d = 2a \quad \text{---(iv)}$$

From (iii) and (iv)

$$a = 3 \text{ and } d = 6$$

$\therefore$ The required A.P is $3, 9, 15, 21, \ldots, \infty$

Arithematic Progressions Ex 19.4 Q32

$$S_n = nP + \frac{1}{2}n(n-1)Q \quad [\text{Given}]$$

$$S_n = \frac{n}{2}\left[2P + (n-1)Q\right] \quad \text{---(i)}$$

We know

$$S_n = \frac{n}{2}\left[2a + (n-1)d\right] \quad \text{---(ii)}$$

Where a = first term and d = common difference comparing (i) and (ii)

$$d = Q$$

$\therefore$ The common difference is Q.

Arithematic Progressions Ex 19.4 Q33

Let sum of n terms of two A.P be S_n and $S'n$.

Then, $S_n = 5n + 4$ and $S'_n = 9n + 16$ respectively.

Then, if ratio of sum of n terms of 2A.P is giben, then the ratio of there nth ther is obtained by replacing n by $(2n - 1)$.

$$\frac{a_n}{a_n'} = \frac{5(2n-1)+4}{9(2n-1)+16}$$

$\therefore$ Ratio of there 18th term is

$$\frac{a_{18}}{a'_{18}} = \frac{5(2\times 18-1)+4}{9(2\times 18-1)+16}$$

$$= \frac{5\times 35+4}{9\times 35+16}$$

$$= \frac{179}{321}$$

Arithematic Progressions Ex 19.4 Q34

Let sum of n term of 1 A.P series be S_n are other S_n

The, $S_n = 7n + 2$ ---(i).

$S_n = n + 4$ ---(ii)

If the ratio of sum of n terms of 2 A.P is given, then the ratio of there nth term is obtained by replacing n by $(2n - 1)$.

$$\frac{a_n}{a_{n'}} = \frac{7(2n-1)+2}{(2n-1)+4}$$

Putting $n = 5$ to get the ratio of 5th term, we get

$$\frac{a_5}{a'5} = \frac{7(2\times 5-1)+2}{(2\times 5-1)+4} = \frac{65}{13} = \frac{5}{1}$$

The ratio is $5 : 1$.