Arithematic Progressions Ex 19.6 Q1

(i) 7 and 13

Let A be the arithematic mean of 7 and 13.

Then,

$7, A, 13$ ar ein A.P

$\Rightarrow \quad A - 7 = 13 - A$

$\Rightarrow \quad A = \frac{13+7}{2} = 10$

$\therefore \quad$ A.M is 10.

(ii) 12 and -8

Let A be the arithematic mean of 12 and -8

Then,

$12, A, -8$ are in A.P

$\Rightarrow \quad A - 12 = -8 - A$

$\Rightarrow \quad A = \frac{12+(-8)}{2} = 2$

$\therefore \quad$ A.M is 2.

(iii) $(x-y)$ and $(x+y)$

Let A be the arithematic mean of $(x-y)$ and $(x+y)$

Then,

$(x-y), A, (x+y)$ are in A.P

$\Rightarrow \quad A - (x-y) = (x+y) - A$

$\Rightarrow \quad A = \frac{(x-y)+(x+y)}{2} = \frac{2x}{2} = x$

$\therefore \quad$ A.M is x.

Arithematic Progressions Ex 19.6 Q2

Let A_1, A_2, A_3, A_4 be the 4 A.M.s between 4 and 19

Then,

$4, A_1, A_2, A_3, A_4, 19$ are in A.P of 6 terms

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

$a_6 = 19 = 4 + (6-1)d$

or $d = 3$ ---(i)

Now,

$A_1 = a + d = 4 + 3 = 7$

$A_2 = A_1 + d = 7 + 3 = 10$

$A_3 = A_2 + d = 10 + 3 = 13$

$A_4 = A_3 + d = 13 + 3 = 16$

The 4 A.M.s between 4 and 19 are $7, 10, 13, 16$.

Arithematic Progressions Ex 19.6 Q3

$2, a_1, a_2, a_3, a_4, a_5, a_6, a_7, 17$

$17 = a + 8d$

$a = 2 \Rightarrow d = \frac{15}{8}$

$a_1 = 2 + \frac{15}{8} = \frac{31}{8}$

$a_2 = \frac{31}{8} + \frac{15}{8} = \frac{46}{8}$

so we get our final series as

$2, \frac{31}{8}, \frac{46}{8}, \frac{61}{8}, \frac{76}{8}, \frac{91}{8}, \frac{106}{8}, \frac{121}{8}, \frac{136}{8} = 17$

********** END **********