RD Sharma Solutions Class 11 Maths Chapter 19 Ex 19.3

Arithematic Progressions Ex 19.3 Q1

Let the 3rd term of A.P be

$a-d, a, a+d$

Then,

$a-d+a+a+d=21$

$3a=21$

$\therefore \quad a=7$

and

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

$a^2-d^2=a+6$

$7^2-d^2=7+6 \qquad [\because a=7]$

$d^2=36$

$d=\pm 6$

Since d can't be negative, therefore

$\therefore$ The A.P is $1, 7, 13$.

Arithematic Progressions Ex 19.3 Q2

Let the 3 numbers in A.P are

$a-d, a, a+d$

Then,

$a-d+a+a+d=27$

$3a=27$

$\therefore \quad a=9 \qquad ---(i)$

and

$(a-d)(a)(a+d)=648$

$(9-d)9(9-d)=648 \qquad [\because a=9]$

$9^2-d^2=72$

$\therefore \quad d=3 \qquad ---(ii)$

$\therefore$ The given sequence is $6, 9, 12$.

Arithematic Progressions Ex 19.3 Q3

Let the four numbers in A.P be

$a-3d, a-d, a+d, a+3d$

$(a-3d)+(a-d)+(a+d)+(a+3d)=50$

$4a=50$

$a=\frac{25}{2} \qquad ---(i)$

and

$(a+3d)=4(a-3d)$

$\frac{25+6d}{2}=50-12d$

$30d=75$

$d=\frac{25}{10}=\frac{5}{2} \qquad ---(ii)$

$\therefore$ The required sequence is $5, 10, 15, 20$.

Arithematic Progressions Ex 19.3 Q4

Let three numbers be $a-d, a, a+d$

Then,

$a-d+a+a+d=12$

$3a=12$

$a=4$

and

$(a-d)^3+a^3+(a+d)^3=\pm 288$

$a^3+d^3+3ad(a+d)+a^3+a^3-a^3-3ad(a-d)-288$

$\Rightarrow \quad 2a^3+3a^2d+3ad^2-3a^2d+3ad^2=288$

$\Rightarrow \quad 2a^3+3a^2d^2=288$

$\Rightarrow \quad 128+48d^2=288$

$\therefore \quad d=\pm 2$

$\therefore$ The required sequence is $2, 4, 6$ or $6, 4, 2$.

Arithematic Progressions Ex 19.3 Q5

Let 3 numbers in A.P be

$a-d, a$ and $a+d$

$\Rightarrow \quad (a-d)+(a)+(a+d)=24$

$3a=24$

$a=8$

and

$(a-d)(a)(a+d)=440$

$8^2-d^2=55$

$d=3$

$\therefore$ The required sequence is $5, 8, 11$.

Arithematic Progressions Ex 19.3 Q6

Let the four angle be

$a-3d, a-d, a+d, a+3d$

Then,

sum of alll angles $=360°$

$a-3d+a-d+a+d+a+3d=360°$

$4a=360°$

$a=90°$ ---(i)

and

$(a-d)-(a-3d)=10$

$2d=10$

$d=5$

$\therefore$ The angle of the given quadrilateral are $75°, 85°, 95°$ and $105°$.