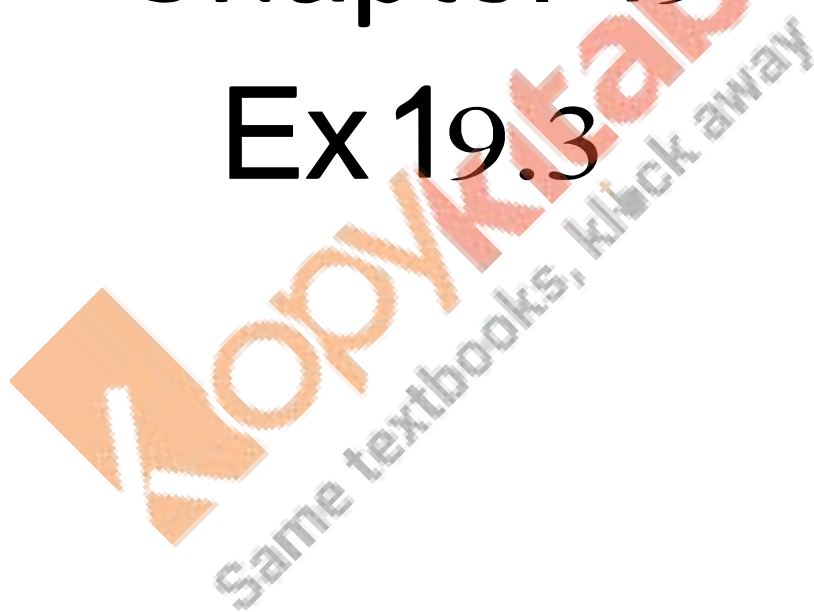


RD Sharma  
Solutions  
Class 11 Maths  
Chapter 19  
Ex 19.3



### Arithmetic Progressions Ex 19.3 Q1

Let the 3rd term of A.P be

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

Then,

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

$$3a = 21$$

$$\therefore a = 7$$

and

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

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

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

$$d^2 = 36$$

$$d = \pm 6$$

Since  $d$  can't be negative, therefore

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

### Arithmetic Progressions Ex 19.3 Q2

Let the 3 numbers in A.P are

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

Then,

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

$$3a = 27$$

$$\therefore a = 9 \quad \text{---(i)}$$

and

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

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

$$9^2 - d^2 = 72$$

$$\therefore d = 3 \quad \text{---(ii)}$$

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

### Arithmetic Progressions Ex 19.3 Q3

Let the four numbers in A.P be

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

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

$$4a = 50$$

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

and

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

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

$$30d = 75$$

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

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

### Arithmetic 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

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

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

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

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

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

$$\therefore d = \pm 2$$

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

### Arithmetic Progressions Ex 19.3 Q5

Let 3 numbers in A.P be

$$a - d, a \text{ and } a + d$$

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

$$3a = 24$$

$$a = 8$$

and

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

$$8^2 - d^2 = 55$$

$$d = 3$$

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

### Arithmetic Progressions Ex 19.3 Q6

Let the four angle be

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

Then,

$$\text{sum of all angles} = 360^\circ$$

$$a - 3d + a - d + a + d + a + 3d = 360^\circ$$

$$4a = 360^\circ$$

$$a = 90^\circ \quad \text{---(i)}$$

and

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

$$2d = 10$$

$$d = 5$$

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