

Exercise 5.1

Fifth term = 
$$\frac{7}{2} + \frac{1}{2} = 4$$
 Sixth term =  $4 + \frac{1}{2} = \frac{9}{2}$ 

Seventh term = 
$$\frac{9}{2} + \frac{1}{2} = 5$$

Therefore, next three terms are 4,  $\frac{9}{2}$  and 5.

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow$$
 -3.2 - (-1.2)

$$=-5.2-(-3.2)$$

$$=-7.2-(-5.2)=-2$$

Common difference (d) = -2

Fifth term = -7.2 - 2 = -9.2Sixth term = -9.2 - 2 = -11.2

Seventh term = -11.2 - 2 = -13.2

Therefore, next three terms are -9.2, -11.2 and -13.2

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow$$
 -6 - (-10) = -2 - (-6)

$$= 2 - (-2) = 4$$

Common difference (d) = 4

Fifth term = 2 + 4 = 6 Sixth term = 6 + 4 = 10

Seventh term = 10 + 4 = 14

Therefore, next three terms are 6, 10 and 14

(v) 
$$3.3 + \sqrt{2.3} + 2\sqrt{2.3} + 3\sqrt{2...}$$

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow 3 + \sqrt{2} - 3$$

$$=\sqrt{2},3+2\sqrt{2}-(3+\sqrt{2})$$

$$=3+2\sqrt{2}-3-\sqrt{2}=\sqrt{2}$$

Common difference (d) =  $\sqrt{2}$ 

Fifth term =  $3 + 3\sqrt{2} + \sqrt{2} = 3 + 4\sqrt{2}$ 

Sixth term =  $3 + 4\sqrt{2} + \sqrt{2} = 3 + 5\sqrt{2}$ 

Seventh term =  $3 + 5\sqrt{2} + \sqrt{2} = 3 + 6\sqrt{2}$ 

Therefore, next, three terms are  $(3+4\sqrt{2})(3+5\sqrt{2})(3+6\sqrt{2})$ 

(vi) 0.2, 0.22, 0.222, 0.2222...

It is not an AP because difference between consecutive terms is not equal.

$$\Rightarrow$$
 0.22 - 0.2  $\neq$  0.222 - 0.22

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow$$
 -4 - 0 = -8 - (-4)

$$=-12-(-8)=-4$$

Common difference (d) = -4

Fifth term = -12 - 4 = -16 Sixth term = -16 - 4 = -20

Seventh term = -20 - 4 = -24

Therefore, next three terms are -16, -20 and -24

(viii) 
$$-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2} \dots$$

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow -\frac{1}{2} - \left(-\frac{1}{2}\right) = -\frac{1}{2} - \left(-\frac{1}{2}\right) = 0$$

Common difference (d) = 0

Fifth term =  $-\frac{1}{2} + 0 = -\frac{1}{2}$  Sixth term =  $-\frac{1}{2} + 0 = -\frac{1}{2}$ 

Seventh term = 
$$-\frac{1}{2} + 0 = -\frac{1}{2}$$

Therefore, next three terms are  $-\frac{1}{2}$ ,  $-\frac{1}{2}$  and  $-\frac{1}{2}$ 

It is not an AP because difference between consecutive terms is not equal.

$$\Rightarrow$$
 3 - 1  $\neq$  9 - 3

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow$$
  $2a-a=3a-2a=4a-3a=a$ 

Common difference (d) = a

Fifth term = 
$$4a + a = 5a$$
 Sixth term =  $5a + a = 6a$ 

Seventh term = 
$$6a + a = 7a$$

Therefore, next three terms are 5a, 6a and 7a

(xi) 
$$a, a^2, a^3, a^4...$$

It is not an AP because difference between consecutive terms is not equal.

$$\Rightarrow a^2 - a \neq a^3 - a^2$$

(xii) 
$$\sqrt{2}$$
,  $\sqrt{8}$ ,  $\sqrt{18}$ ,  $\sqrt{32}$ ...

$$\Rightarrow \sqrt{2}, 2\sqrt{2}, 3\sqrt{2}, 4\sqrt{2}$$

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow 2\sqrt{2} - \sqrt{2} = 3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$$

Common difference (d) =  $\sqrt{2}$ 

Fifth term = 
$$4\sqrt{2} + \sqrt{2} = 5\sqrt{2}$$
 Sixth term =  $5\sqrt{2} + \sqrt{2} = 6\sqrt{2}$ 

Seventh term = 
$$6\sqrt{2} + \sqrt{2} = 7\sqrt{2}$$

Therefore, next three terms are  $5\sqrt{2}$ ,  $6\sqrt{2}$ ,  $7\sqrt{2}$ 

(xiii) 
$$\sqrt{3}$$
,  $\sqrt{6}$ ,  $\sqrt{9}$ ,  $\sqrt{12}$ ...

It is not an AP because difference between consecutive terms is not equal.

$$\Rightarrow \sqrt{6} - \sqrt{3} \neq \sqrt{9} - \sqrt{6}$$

(xiv) 
$$1^2$$
,  $3^2$ ,  $5^2$ ,  $7^2$ ...

It is not an AP because difference between consecutive terms is not equal.

$$\Rightarrow$$
 3<sup>2</sup> - 1<sup>2</sup>  $\neq$  5<sup>2</sup> - 3<sup>2</sup>

It is an AP because difference between consecutive terms is equal.

$$\Rightarrow$$
 5<sup>2</sup> - 1<sup>2</sup>

$$= 7^2 - 5^2 = 73 - 7^2 = 24$$

Common difference (d) = 24

Fifth term = 73 + 24 = 97 Sixth term = 97 + 24 = 121

Seventh term = 121 + 24 = 145

Therefore, next three terms are 97, 121 and 145

\*\*\*\*\*\*\*\*\* END \*\*\*\*\*\*\*