

**Ex 5.2**

**NCERT Solutions by Dev Anoop (Bathinda)**

(15)  $63, 65, 67, \dots$   
 $a = 63, d = 65 - 63 = 2$

$3, 10, 17, \dots$   
 $a' = 3, d' = 10 - 3 = 7$

$a_n = a'_n$

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

$63 + (n-1)2 = 3 + (n-1)7$

$\Rightarrow (n-1)5 = 60 \quad | \quad 12$

$\Rightarrow n = 12 + 1 = 13$

(16)  $a_3 = 16$   
 $a + 2d = 16 \dots \textcircled{1}$

$a_7 - a_5 = 12$   
 $a + 6d - a - 4d = 12$

$\Rightarrow 2d = 12$   
 $\Rightarrow d = 6$

Sub  $\textcircled{1}$

$a + 2 \times 6 = 16$   
 $\Rightarrow a = 16 - 12$   
 $\Rightarrow a = 4$

$\therefore$  reqd A.P.  
 $4, 10, 16, \dots$

(17) given A.P.  
 $3, 8, 13, \dots, 253$

A.P. in reverse order is

$253, 248, 243, \dots$

$a = 253, d = 248 - 253 = -5$

$a_{20} = a + 19d$   
 $= 253 + 19(-5)$   
 $= 253 - 95$   
 $= 158$

20th from last = 158

(18)  $a_4 + a_8 = 24$   
 $a + 3d + a + 7d = 24$   
 $\Rightarrow 2a + 10d = 24$   
 $(\div 2) a + 5d = 12 \dots \textcircled{1}$

$a_6 + a_{10} = 44$   
 $a + 5d + a + 9d = 44$

$\Rightarrow 2a + 14d = 44$

$(\div 2) a + 7d = 22 \dots \textcircled{II}$

$\textcircled{II} - \textcircled{I}$   
 $a + 7d = 22$   
 $a + 5d = 12$

$2d = 10$

$\Rightarrow d = \frac{10}{2} = 5$

Sub  $\textcircled{I}$

$a + 25 = 12$

$a = -13$

reqd A.P. =  $-13, -8, -3, \dots$