

**Ex 5.3**

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

3 (vii)  $a=8, a_n=62, S_n=210$   
 $n=? , d=?$

$S_n = 210$

$\frac{n}{2} [a + a_n] = 210$

$\frac{n}{2} [8 + 62] = 210$

$\frac{n}{2} \times 70 = 210$

$\Rightarrow n = 6$

$a_n 6 = 62$

$a + (n-1)d = 62$

$8 + (6-1)d = 62$

$8 + 5d = 62$

$\Rightarrow 5d = 62 - 8$

$\Rightarrow d = \frac{54}{5}$

3 (viii)  $a_n=4, d=2, S_n=-14$   
 $n=? , a=?$

$a_n = 4$

$\Rightarrow a + (n-1)d = 4 \dots \textcircled{1}$

$a + (n-1)2 = 4$

$a = 4 - (n-1)2$

$\Rightarrow a = 4 - 2n + 2$   
 $a = 6 - 2n \dots \textcircled{1}$

$S_n = -14$

$\frac{n}{2} [a + a_n] = -14$

$n [6 - 2n + 4] = -28$

$\Rightarrow n (10 - 2n) = -28$

$\Rightarrow 2n^2 - 10n - 28 = 0$

$(\div 2) n^2 - 5n - 14 = 0$

$\Rightarrow n^2 - 7n + 2n - 14 = 0$

$\Rightarrow n(n-7) + 2(n-7) = 0$

$\Rightarrow (n-7)(n+2) = 0$

$\Rightarrow n-7=0, n+2=0$

$\Rightarrow n=7, n=-2$   
 rejected

Sub  $\textcircled{1}$

$a = 6 - 2 \times 7$

$= 6 - 14$

$= -8$

$\therefore a = -8, n = 7$

(ix)  $a=3, n=8, S_n=192$

$S_n = 192$

$\frac{n}{2} [2a + (n-1)d] = 192$

$4 [2 \times 3 + 7d] = 192$

$4 [6 + 7d] = 192$

$\Rightarrow 7d + 6 = \frac{192}{4} = 48$

$\Rightarrow 7d = 42$

$\Rightarrow d = \frac{42}{7} = 6$

$\Rightarrow d = 6$