10 (i) $a_n = 3+4n$

$a_{n-1} = 3+4(n-1)$
$= 3+4n-4$
$= -1+4n$

$a_n - a_{n-1} = 3+\cancel{4n}+1-\cancel{4n}$
$= 4$

$\because$ diff. is independent of n

$\therefore a_1, a_2, a_n, \ldots, a_n, \ldots$ form an A.P.

$n=1$

$a_1 = 3+4\times1$
$= 7$

$a_2 = 3+4\times2$
$= 11$

$d = a_2 - a_1$
$= 11-7$
$= 4$

$S_{15} = \frac{15}{2}[2\times7+14\times4]$
$= \frac{15}{2}\times(14+56)$
$= \frac{15}{\cancel{2}}\times\cancel{70}^{35}$
$= 525$

10 (ii) $a_n = 9-5n$

$a_{n-1} = 9-5(n-1)$
$= 9-5n+5$
$= 14-5n$

$a_{n-2} = 9-5(n-2)$
$= 9-5n+10$
$= 19-5n$

$a_n - a_{n-1} = 9-\cancel{5n}-14+\cancel{5n}$
$= -5$

$a_{n-1} - a_{n-2} = 14-\cancel{5n}-19+\cancel{5n}$
$= -5$

$\because$ diff. remains constant

$\therefore a_1, a_2, a_3, \ldots, a_n, \ldots$ form A.P.

$a_1 = 9-5\times1$
$= 9-5$
$= 4$
$\Rightarrow d = -5$

$S_{15} = \frac{15}{2}[2\times4+14(-5)]$
$= \frac{15}{2}[8-70]$
$= \frac{15}{\cancel{2}}\times-\cancel{62}^{31}$
$= -465$