6. $a = 17 \quad a_n = 350 \quad d = 9$

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

$350 = 17 + (n-1)9$

$350 = 17 + 9n - 9$

$350 = 8 + 9n$

$342 = 9n$

$38 = n$

$S_n = \frac{n}{2}\{2a + (n-1)d\}$

$= \frac{38}{2}\{34 + 37 \times 9\}$

$= 19\{34 + 333\}$

$= 19 \times 367$

$= 6973$

7. $d = 7 \quad n = 22 \quad a_n = 149$

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

$149 = a + 21 \times 7$

$149 = a + 147$

$2 = a$

$S_n = \frac{n}{2}\{2a + (n-1)d\}$

$= 11\{4 + 21 \times 7\}$

$= 11\{4 + 147\}$

$= 11 \times 151$

$= 1661$

8. $a_2 = 14 \quad a_3 = 18$

$a + d = 14 \quad a + 2d = 18$

$d = 4$

$a = 10$

$S_{51} = \frac{n}{2}\{2a + (n-1)d\}$

$= \frac{51}{2}\{20 + 200\}$

$= \frac{51}{2} \times 220$

$= 51 \times 110$

$= 5610$

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Date:

q. $S_7 = 49$

$S_n = \frac{n}{2}\{2a+(n-1)d\}$

$49 = \frac{7}{2}\{2a+6d\}$

$49 = 7\{a+3d\}$

$7 = a+3d$

$S_{17} = 289$

$S_n = \frac{n}{2}\{2a+(n-1)d\}$

$289 = \frac{17}{2}\{2a+16d\}$

$289 = 17\{a+8d\}$

$17 = a+8d$

$a+8d = 17$

$a+3d = 7$

$5d = 10$

$d = 2$

$a = 1$

$S_n = \frac{n}{2}\{2a+(n-1)d\}$

$S_n = \frac{n}{2}\{2+(n-1)2\}$

$S_n = \frac{n}{2}\{2+2n-2\}$

$S_n = \frac{n}{2}\{2n\}$

$S_n = n^2$

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

let $a_n = 1$

$a_1 = 3 + 4(1) = 3 + 4 = 7$

$a_2 = 3 + 4(2) = 3 + 8 = 11$

$a_3 = 3 + 4(3) = 3 + 12 = 15$

$a_4 = 3 + 4(4) = 3 + 16 = 19$

$a_5 = 3 + 4(5) = 3 + 20 = 23$

$\{7, 11, 15, 19, 23 \ldots\}$

$S_n = \frac{n}{2}\{2a + (n-1)d\}$

$= \frac{15}{2}\{14 + 14 \times 4\}$

$= \frac{15}{2}\{14 + 56\}$

$= \frac{15}{2} \times 70^{35}$

$= 15 \times 35$

$= 525$

(ii) $a_n = 9 - 5n$

let $n = 1$

$a_1 = 9 - 5(1) = 9 - 5 = 4$

$a_2 = 9 - 5(2) = 9 - 10 = -1$

$a_3 = 9 - 5(3) = 9 - 15 = -6$

$a_4 = 9 - 5(4) = 9 - 20 = -11$

$a_5 = 9 - 5(5) = 9 - 25 = -16$

$\{4, -1, -6, -11, -16\}$

$S_n = \frac{15}{2}\{2a + (n-1)d\}$

$= \frac{15}{2}\{8 + 14 \times -5\}$

$= \frac{15}{2}\{8 - 70\}$

$= \frac{15}{2} \times -62^{-31}$

$= -465$

11. $S_n = 4n - n^2$

$S_1 = 4 - 1 = 3$

$S_2 = 8 - 4 = 4$

$S_3 = 12 - 9 = 3$

$S_4 = 16 - 16 = 0$

$S_5 = 20 - 25 = -5$

$S_6 = 24 - 36 = -12$

$a_4 = S_4 - S_3$

$a_3 = S_3 - S_2$

$a_2 = S_2 - S_1$

$a_1 = S_1 - S_0 = 3$

$a_2 = S_2 - S_1 = 1$

$a_3 = 3 - 4 = -1$

$a_4 = 0 - 3 = -3$

$a_5 = -5 - 0 = -5$

$a_6 = -12 + 5 = -7$

$\{3, 1, -1, -3, -5, -7 \ldots\}$

$a = 3 \quad d = -2$

10. $\{6, 12, 18, 24, 30, \ldots 240\}$

$a = 6 \quad d = 6$

$$S_{nn} = \frac{n}{2}\{2a + (n-1)d\}$$

$$S_{40} = \frac{40}{2}\{12 + 39 \times 6\}$$

$$S_{40} = 20\{12 + 234\}$$

$$S_{40} = 20\{246\}$$

$$S_{40} = 4920$$