HW

ARITHMETIC PROGRESSION

1. $a_n = 2n+1$

$\therefore a_1 = 2(1)+1 = 3$

$a_2 = 2(2)+1 = 5$

$a_3 = 2(3)+1 = 7$

$a_4 = 2(4)+1 = 9$

$\therefore$ A.P. is $3, 5, 7, 9 \ldots\ldots$

$\therefore d = 5-3 = 2.$

$d = 7-5 = 2.$

$\therefore$ Common difference is 2.

Hence answer is option b) 2.

2. Here, $a = 2$, $d = 3$ & $n = ?$

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

$59 = 2 + (n-1)d$

$2 + 3n - 3 = 59$

$3n = 59 + 1$

$\Rightarrow 3n = 60 \Rightarrow n = \frac{60}{3} = 20.$

Hence, the answer is option (c).

3. (a) 1

4. (b) 26

5. (d) 3

11th term is 35

13th term is 41

Now the d is $\frac{(41-35)}{2} = \frac{6}{2} = 3.$

7. (b) 71 is the a_{15} term.

6. (a) $5\sqrt{2}$.

$\sqrt{8}, \sqrt{18}, \sqrt{32} \ldots\ldots\ldots$

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

Hence $a = 3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$

Next term $= 4\sqrt{2} + \sqrt{2} = 5\sqrt{2}$

8. (b) 3, 7, 12, 18, ...

9. $a = 1, d = 2$.

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

$n = 20, a = 1, d = 2$

$AP \Rightarrow \frac{20}{2}\{2 \times 1 + (20-1) \times 2\}$

$AP = 10 \times \{2 + 19 \times 2\}$

$AP = 10 \times 40 = 400$

Hence, the answer is (c) 400

10. sum of first 'n' natural numbers $= \frac{n(n+1)}{2}$

sum of first 20 natural number $= \frac{20(20+1)}{2} \Rightarrow \frac{20(21)}{2} = 210$

Hence, option (d) 210 is correct.