

$$t_n = 1, 3, 5, 7, 9, \dots$$

$$t_n = 2n + 1 \quad \text{الف}$$

$$t_1 = 2 \cdot 1 + 1 = 3 \quad \text{ب}$$

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$$t_n = 1, 4, 9, 16, 25, \dots \quad a = 1, d = 3$$

$$S_n = \frac{n}{2} (2a + (n-1)d) \Rightarrow S_1 = 1 \quad \text{الف}$$

$$S_2 = \frac{2}{2} (2 \cdot 1 + (2-1) \cdot 3) = 4 \quad \text{ب}$$

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$$t_n = 1 + \sqrt{2}, 2 + \sqrt{2}, 3 + \sqrt{2}, \dots \quad d = 1, a = 1 + \sqrt{2}$$

$$a_{10} - a_{11} = 1 \Rightarrow a_{10} - a_{11} = 1 \quad \text{ب}$$

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$$a_n = 1, 2, 3, 4, 5, \dots \quad d = 1 \Rightarrow a_n = n \quad \text{الف}$$

$$\Rightarrow (1 \times 2) + (2 \times 3) + \dots + (n \times (n+1)) = \frac{n(n+1)(n+2)}{6} \quad \text{ب}$$

$$b_n = 1, 2, 3, 4, 5, \dots \quad d = 1 \Rightarrow b_n = n \quad \text{ب}$$

$$\Rightarrow \frac{x+y}{2} = 2 \Rightarrow x+y = 4$$

$$\begin{cases} y = 2n+1 \\ x+y = 4 \end{cases} \Rightarrow \begin{cases} y = 1 \\ x = 3 \end{cases}$$

$$ny = 3$$

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$$t_n = 1, 2, 3, 4, 5, \dots$$

$$t_n = 1 \times \frac{1}{2} = \frac{1}{2}$$

$$d = 2a - 1 = (2 \cdot 1 - 1) = 1 \Rightarrow 2a - 1 = 1 \Rightarrow 2a = 2 \Rightarrow a = 1$$

$$t_n = t_1 + d \Rightarrow t_n = 1 + 1 = 2$$

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$\left. \begin{aligned} b_n = 2, 0, 1, 1, 1, 1, 1, 1, \dots \rightarrow b_n = 5n-1 \\ a_n = 2, 0, 1, 1, 1, 1, 1, 1, \dots \rightarrow a_n = 2n+1 \end{aligned} \right\} n < 7$ $b_7 = 0, a_7 = 1 \Rightarrow M_n < 1, M_n < 0 \Rightarrow M_n < 1$ $M_n = 0, 1, 1, 1, \dots$ $M_n = 9n-1$ $9n-1 < 1$ $\Rightarrow 9n < 2 \Rightarrow n < \frac{2}{9} \Rightarrow n: 1, 2, 3, 4, 5, 6, 7 \rightarrow$ 1, 1, 0 1, 1, 0	6
$\left. \begin{aligned} a_1 + a_r + d_r = 2 \\ a_1 + a_r + a_d = 1.0 \end{aligned} \right\} \Rightarrow \begin{aligned} a + a + d + a + r + d = 2 \Rightarrow r + d = 1 \Rightarrow a + d = 1 \Rightarrow a_r = 1 - d \\ a_1 + a_r + a_d = 1.0 \Rightarrow 1 - d + 1 + d + 1 + d = 1.0 \Rightarrow 3 + d = 1.0 \Rightarrow d = -2 \end{aligned}$ $r + d = 1 \Rightarrow r = 1 - d \Rightarrow r = 3$ $a_r = 1 - d = 3$ $-1, 1, 3, 5, \dots$ $\frac{a_r - a_r + a_1}{a_1} = \frac{3 - 1 - 1}{-1} = -1$ $\frac{a_r - a_r + a_1}{a_1} = \frac{3 - 1 - 1}{-1} = -1$	7
$a_1 + a_r + a_r = 1 \Rightarrow a_r - d + a_r + a_r + d = 1 \Rightarrow 3a_r = 1 \Rightarrow a_r = \frac{1}{3}$ $a_1 + a_0 = 2 \Rightarrow a_r + r + d + r + d = 2 \Rightarrow 1 + d = 2 \Rightarrow d = 1$ $a_1 = a_r + 9d = \frac{1}{3} + 9 = \frac{28}{3}$	8
$S_9 = 9S_r$ $\frac{9}{r}(a + 11d) = 9 \times \frac{r}{r}(a + 11d) \Rightarrow 9a + 99d = 9a + 99d \Rightarrow 9a = 99d \Rightarrow a = 11d$ $\frac{a_r}{a_v} = \frac{a + 11d}{a + 9d} = \frac{a + 11(11a)}{a + 9(11a)} = \frac{122a}{100a} = \frac{61}{50}$	9
$a_1 = 11, a_r = 22 \Rightarrow 9d = 22 \Rightarrow d = \frac{22}{9} \Rightarrow a_2 = 11 + \frac{22}{9} = \frac{121}{9}, a_3 = \frac{121}{9} + \frac{22}{9} = \frac{143}{9}$ $b_1 = 22, b_2 = 12, b_3 = 22 \Rightarrow 22 - 22 = 0 \Rightarrow d = 0$ $\frac{12 - 22}{22 - 1} = -1 \Rightarrow 9(-1) = -9 \Rightarrow 9(-1) = -9 \Rightarrow b_1 \rightarrow b_2$ واسطه بین این دو است.	10