

الف) $t_n = 5, 9, 13, 17, \dots \rightarrow t_n = 4n + 1$

ب) $t_{10} = 4 \times 10 + 1 = 41$

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$t_n = 4, 10, 16, 22, \dots$

الف) $S_n = \frac{n}{2} (2a + (n-1)d) \Rightarrow S_{10} = \frac{10}{2} (2 \times 4 + 9 \times 6) = 250$

ب) $t_1 + t_2 + t_3 + \dots + t_{19} = 10(t_1 + t_{19}) = 10(4 + 124) = 1290$

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$1 + \sqrt{3}, 2, 3 - \sqrt{3}$

$d = 2 - 1 - \sqrt{3} = 1 - \sqrt{3}$

$d = \frac{t_m - t_n}{m - n} \Rightarrow 1 - \sqrt{3} = \frac{t_{18} - t_{13}}{5} \Rightarrow t_{18} - t_{13} = 5 - 5\sqrt{3}$

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$a_n = 2^x, 3 \times 2^x, 2^y \rightarrow 2b = a + c \Rightarrow 3 \times 2^x = 2^x + 2^y$

$b_n = x, 2, y$

$\Rightarrow 2 = x + y$

$3 \times 2 + 1 = 7$

$2 \times 2 = 4 \quad x = 1 \quad y = 1$

$xy = 1 \times 1 = 1$

$3 \times 2^x = 2^x + 2^y$

$2 \times 2^x = 2^x + 2^y$

$2 \times 2^x = 2^y$

$2^{x+1} = 2^y \Rightarrow x+1 = y$

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$2x - 4, 2x - 1, 4x, \dots$

$2b = a + c \Rightarrow 2x - 1 = 2x - 4 + 4x$

$2x = 2 \quad x = 1$

$-3, 0, 3, \dots \rightarrow t_n = 3n - 3 \quad t_5 = 12 - 3 = 9$

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$a_n = \underbrace{2, 8, 18, \dots}_{+2}, - \quad a_n = 2n+1$
 $b_n = \underbrace{2, 8, 18, \dots}_{+2}, - \quad b_n = 2n-1$
 $4n-1 \leq 41 \quad 4n \leq 42 \quad n \leq 10 \rightarrow \boxed{\text{بله } 10 \text{ شکر}}$

$$\begin{aligned} a_1 + a_r + a_v &= 1 \\ a_1 + a_r + a_d &= 10d \\ \frac{a_r + a_1}{a_1} &= ? \end{aligned} \quad \begin{aligned} x-d, x, x+d &\Rightarrow \psi x = 1 \quad x = V \Rightarrow a_v = V \\ x-d, x+d, x+Vd &\Rightarrow \psi x + \psi d = 10d \quad x+d = Vd \\ &\quad Vd = 11 \end{aligned}$$

$$\underbrace{x-d, x, x+d}_{1d}, \underbrace{x+rd, x+rd}_{rd} \quad t_{10} = t_1 + 9d = 1 + 9 \times 2 = 19$$

$$\begin{aligned} & x - 4d, x - 3d, x - 2d, x - d, x, x + d, x + 2d, x + 3d, x + 4d \\ & 9x = 9S_p \quad x = S_p \\ & \frac{x - 4d}{S_p} = S_p \quad S_p = 4d \quad x = 4d \quad d = \frac{x}{4} \\ & \frac{a_{10}}{ar} = \frac{a + 9d}{a + 4d} = \frac{\frac{1}{4}x + \frac{9 \cdot 1}{4}x}{\frac{1}{4}x + \frac{1 \cdot 1}{4}x} = \frac{\frac{10}{4}x}{\frac{2}{4}x} = \boxed{5} \end{aligned}$$

$$t_1 = 11 \quad t_2 = 18 \quad d_2 = \frac{18-11}{4} = \frac{7}{4} = 1.75 \quad t_2 = t_1 + 7d = 11 + 17.5 = 28.5$$

$$d_1 = \frac{18-11}{7} = \frac{7}{7} = 1 \quad d_2 = \frac{18-11}{n+1} = \frac{7}{n+1} = 1$$

$$n+1 = 7 \quad n = 6$$