

$$f_n = 5, 9, 13, 17, \dots$$

$$a_1 + (n-1)d = 5 + (n-1)4 = 5 + 4n - 4 = 4n + 1 \quad (\text{الف})$$

$$f(10) + 1 = 41$$

ب) جاه دهم

$$f_n = 6, 21, 40, 63, 90, \dots$$

قانون اندیسها حتما ۲ طرف عبارت تعداد صدها بیسان است!

$$t_{29} + t_{32} = t_{31} + t_{31}$$

$$S_n = \frac{n}{2} (2a_1 + (n-1)d) = 5(12 + (10-1)4) = 240 \quad (\text{الف})$$

$$2(1 + 3 + 5 + \dots + 29) = 2(29 \times 15) = 870$$

$$8 \times 11 = 88$$

$$t_{29}, t_{30}, t_{31}, t_{32} \rightarrow t_{29} \rightarrow t_{30} = t_{29} + \frac{29d}{11} = 122 \quad (\text{ب})$$

$$d = \frac{3 - \sqrt{3} - (1 + \sqrt{3})}{3 - 1} = \frac{1}{2}$$

$$a_2 - a_1 = d$$

$$t_{25} = t_{23} + 2d$$

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

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

$$a_{25} - a_{23} = 2d = 2 - 2\sqrt{3}$$

$$a_n = 2^{\frac{n}{2}}, 3 \times 2^{\frac{n}{2}}, 5 \times 2^{\frac{n}{2}} \rightarrow 2 \times 2^{\frac{n}{2}}, 3 \times 2^{\frac{n}{2}}, 5 \times 2^{\frac{n}{2}}$$

$$b_n = 26, 29, \dots$$

$$\frac{26+y}{2} = 1 \quad 26+y=2$$

$$1 \times 3 = 3$$

$$2x = y = -1$$

$$x+y = 2$$

$$3x = 3 \quad x=1 \quad y=3$$

$$3 \times 2^{\frac{n}{2}} + 5 \times 2^{\frac{n}{2}} = 5 \times 2^{\frac{n}{2}}$$

$$2 \times 2^{\frac{n}{2}} = 5 \times 2^{\frac{n}{2}}$$

$$2x+1=y$$

$$2x-y=-1$$

$$\frac{2x-1+4x}{2} = 2x-1 \quad d = 2x-1 = (2x-4) = \frac{3}{2}$$

$$-2 \quad 2m \quad t_f = \frac{3}{2} \left(\frac{1}{2} \right) = 3$$

$$t_2 = 3+3=6$$

$$f_n = 2n + 4$$

$$f_n - 2 = 0$$

$$a_n = 3, 7, 9, 11 \rightarrow r_{n+1} \rightarrow r_0 = \underline{11}$$

$$b_n = 3, 7, 11, 15 \rightarrow r_{n-1} \rightarrow r_0 = 15$$

$$d = 4 \quad a + (n-1)d = 3 + (n-1)4 = 4n - 1 \leq 11 \quad \begin{matrix} 4n \leq 12 \\ n \leq 3 \end{matrix}$$

$$\begin{aligned} a_1 + a_2 + a_3 &= 21 \quad \text{var} = 21 \quad \boxed{a_2 = 7} \quad r_2 = d \quad d = 21, a_1 = -21 \quad 1, 2 \\ a_1 + a_2 + a_3 &= 105 \quad \text{var} = 105 \quad a_2 = 35 \quad a_2 \leq 35 \\ a_1 &= a_2 - d = 7 - 21 = -14 \\ a_3 - a_2 + a_1 &= 35 - 7 - 14 = 14 \end{aligned}$$

$$d = 3 \quad a_2 - a_1 + a_1 = \frac{35 - 7 - 21}{1} = \frac{-6}{1} = -6$$

$$\begin{aligned} a_1 + a_2 + a_3 &= 14 \quad \text{var} = 14 \quad a_2 = 5 \\ a_2 + a_3 &= 14 \quad + f_0 \\ a_1 + a_2 + a_3 + a_4 + a_5 &= 50 \quad \text{var} = 50 \quad a_2 = 11 \\ a_1 + (n-1)d &\rightarrow 1 + (9 \times 4) = 37 \quad a_1 + 4d = 37 \\ a_1 + 4d &= 37 \end{aligned}$$

$$\begin{aligned} S_n &= \frac{n}{2} (2a_1 + (n-1)d) \\ \frac{9}{2} (2a_1 + 14d) &= \frac{9}{2} (2a_1 + 14d) \\ 2a_1 + 14d &= 2a_1 + 14d \\ 2d &= 14d \quad d = 2a_1 \end{aligned}$$

$$\begin{aligned} \frac{a_{r_0}}{a_v} &= \frac{a_1 + 14d}{a_1 + 14d} \\ \frac{a_{r_0}}{a_v} &= \frac{a_1 + 14d}{a_1 + 14d} \\ \frac{a_{r_0}}{a_v} &= \frac{a_1 + 14d}{a_1 + 14d} \end{aligned}$$

$$\begin{aligned} a_1 &= 11 \quad d = \frac{21}{9} = \frac{7}{3} \quad a_1 + (n-1)d \\ a_v &= 35 \\ a_1 &= 31 \\ 31 + 3d &= 35 \\ 3d &= 4 \quad d = \frac{4}{3} \\ a_1 + (n-1)d &= 35 \\ 31 + (n-1)\frac{4}{3} &= 35 \\ 31 - 4n + 4 &= 35 \\ 4n &= 0 \quad n = 9 \end{aligned}$$

$$\frac{35 - 31}{n+1} = -2$$

$$n = 9$$