

۱. A در ۵٪

محاسبات

باستفاده از یک سطح ۱٪

$$\frac{a}{r} \times a \times ar = a^3 = 9F \rightarrow \boxed{a = r} \rightarrow \frac{F}{r} + F + Fr = 11 \rightarrow Fr^2 + Fr + F = 11r \quad (1)$$

$$Fr^2 - 14r + F = 0 \quad r^2 - 14r + 14 = 0 \quad (r-14)(r-1) = 0 \rightarrow \begin{matrix} 1 \\ F \\ F \end{matrix} \rightarrow \begin{matrix} 1 \\ F \\ F \end{matrix}$$

(1) و (14) مساوی

$$a_r^2 = a_1 \times a_w \rightarrow (r_n)^2 = (a^2 + F)(a^2 - r) \rightarrow \boxed{Fr^2 = a^2 + r_n^2 - 1} \quad (2)$$

$$a^2 - r_n^2 - 1 = 0 \quad (a - F)(a + r) = 0$$

$\frac{a}{F} = \frac{r}{-1} \rightarrow ar = -r \times \frac{1}{F} \Rightarrow \boxed{a^2 = F} \checkmark \Rightarrow a = \pm r$

$$a = r : a_1 = 1, a_r = F, a_w = r \Rightarrow r = \frac{1}{r} \checkmark$$

$$a = -r : a_1 = 1, a_r = -F, a_w = r \Rightarrow r = -\frac{1}{r} \times \quad \text{درست نیست (چون r > 0)}$$

$$S_v = a_1 \left(\frac{1 - r^n}{1 - r} \right) \Rightarrow S_v = 1 \times \frac{11V}{\frac{1}{r}} = 1 \times \frac{11V}{\frac{9F}{1}} = \frac{11V}{1}$$

$$a + ar + ar^2 + ar^3 + ar^4 = ?$$

$$a(1 + r + r^2 + r^3 + r^4) = 9F \times \frac{11}{21} = \frac{99F}{21}$$

$\frac{11}{1}$

$$d = \frac{9f-1}{4} = 10, d \rightarrow 1, 11, d, 22, \boxed{33, d}, 44, 55, d, 66$$

$$r = \gamma \frac{9f}{1} = r^9 \Rightarrow r = \sqrt[9]{\gamma} \quad \begin{array}{l} r=\gamma \quad 1, \gamma, \gamma^2, \boxed{\gamma^3}, \gamma^4, \gamma^5, \gamma^6 \\ r=-\gamma \quad 1, -\gamma, \gamma^2, \boxed{-\gamma^3}, \gamma^4, -\gamma^5, \gamma^6 \end{array}$$

$$A+B \rightarrow 33, d + 1 = 34, d$$

$$L \rightarrow 33, d - 1 = 32, d$$

$$d = \left(\frac{-9d}{f} \right) - (-2f) = \frac{1}{f} \quad a_{1,1} = a_1 + 100d \Rightarrow -2f + \frac{100}{f} = 1$$

$$t_n = 12 \times r^v = 1 \rightarrow r^v = \frac{1}{12n} \rightarrow r = \frac{1}{\sqrt[n]{12}}$$

$$a_r, a_v, a_d \rightarrow (a_1 + rd)(a_1 + nd) = (a_1 + 9d)^2$$

$$a_1^2 + 14a_1d + 10nd = a_1^2 + 18a_1d + 81d^2 \rightarrow -2ad = 2 \cdot d^2$$

چون در سوال ذکر نشده جملات متجانس اند پس ممکن است $d=0$ و جمله n ام صفر باشد.

$$-2ad = 2 \cdot d^2 \rightarrow a = -1 \cdot d$$

$$\rightarrow \textcircled{1} \frac{d}{a} = \frac{-1}{10} \quad \textcircled{2} \frac{d}{a} = \frac{0}{a} = 0$$

$$a_r, a_v, a_d \rightarrow (a+d)(a+vd) = (a+9d)^2 \rightarrow a^2 + vad + 10ad = a^2 + 18ad + 81d^2$$

$$-2ad = 2 \cdot d^2 \rightarrow \boxed{a = d}$$

$$\Rightarrow r_a, f_a, 12a \rightarrow r = \frac{f_a}{r_a} = \sqrt[n]{\gamma} \rightarrow a_{1,0} = a_1 r^9 = \frac{1}{f} \times r^9 = r^9 \times r^9 = r^{18} = 12 \times 12$$

$$r_{ar}, r_{ar}, a_f \rightarrow r \cdot ar^2 - r \cdot ar = ar^3 - r \cdot ar^2 \rightarrow ar^3 - r \cdot ar^2 + r \cdot ar = 0$$

$$\frac{ar}{r} (r^2 - r + 1) = 0 \rightarrow (r-1)(r-1) = 0$$

سوال $r=1$ است اما $r \neq 1$ زیرا اگر $r=1$ باشد جمله n ام صفر است و جمله n ام صفر نیست پس $r=1$ نیست.

$$d = \frac{v}{f} - \frac{1}{f} = -\frac{1}{f} \quad a_f = \frac{d}{f}, \quad a_1 = r - \frac{v}{f} = \frac{1}{f}, \quad a_{11} = r - \frac{11}{f} = -1$$

$$\frac{\frac{1}{f} + n}{\frac{d}{f} + n} = \frac{-1+n}{\frac{1}{f}+n} \rightarrow \frac{\frac{1+fn}{f}}{\frac{d+fn}{f}} = \frac{1+fn}{d+fn} \rightarrow \frac{n-1}{\frac{1+fn}{f}} \rightarrow \frac{(1+fn)^f}{1+19ar^f + 12n}$$

$$fn = -11 \Rightarrow n = \frac{-11}{f}$$

$$a = -\frac{r_1}{r} \Rightarrow -\frac{14}{r}, -\frac{r_0}{r}, -\frac{r_0}{r} \xrightarrow{\text{میانگین}} \frac{-\frac{r_0}{r}}{-\frac{14}{r}} = \frac{-r_0}{-14} = r \Rightarrow r = \frac{d}{f} \quad \checkmark$$

$$a_1 + a_f + a_v = V^k \rightarrow a_1 + ar^3 + ar^4 = V^k \rightarrow a(1 + r^3 + r^4) = V^k \quad (1)$$

$$a_1 = t_1, \quad a_f = t_f \rightarrow a_1 + d, \quad a_v = t_{10} = a + 9d$$

$$\left(\frac{1}{f} \right) ar^4 = a_1 + 9(a(r^3 - 1)) \Rightarrow a_1 + 9ar^3 \rightarrow 9a = a(1 + 9r^3 - 9) = a(9r^3 - 1)$$

$$ar^4 = a(9r^3 - 1) \rightarrow r^4 = 9r^3 - 1 \rightarrow r^4 - 9r^3 + 1 = 0 \rightarrow \underbrace{(r^3 - 1)}_{r^3=1} \underbrace{(r^3 - 1)}_{r^3=1} = 0$$

$$r^3 = 1 \rightarrow \underline{r=1}, \quad r^3 = 1 \rightarrow \underline{r=1} \quad d = a(r^3 - 1) \rightarrow d = a(1 - 1) = d = \underline{Va_1}$$

$$a + ar^3 + ar^4 = V^k \rightarrow a + 1a + 4fa = V^ka = V^k$$

$$\Rightarrow \boxed{a=1} \rightarrow d = V(1) \Rightarrow \boxed{d=V}$$

اگر دنباله غیر ثابت باشد

اگر دنباله ثابت باشد $r=1 \leftarrow d=0$