

①

$$a_1 + a_r + a_r = 21 \rightarrow \left(\frac{r}{r} + r + r = 21 \right)^{xr}$$

$$a_1 a_r a_r = 4r \rightarrow a^r q^r = 4r \rightarrow aq = r$$

$$r + fr + fr = 21r$$

$$fr = 14r + r = 0$$

$$r = \left[\frac{1}{f} \right] = f \leftarrow (r-1)(r-14) = 0 \leftarrow r = 14r + 14 = 0$$

②

$$rx^r = x^r + 12x^r - 1$$

$$x^r - 12x^r - 1 = 0$$

$$x^r = f, \rightarrow (x^r - f)(x^r + 1) = 0$$

$$x = \pm 1 \rightarrow \begin{matrix} +1 & 1, f, 1 \rightarrow q = \frac{1}{f} \\ -1 & 1, -f, 1 \rightarrow q > 0 \end{matrix}$$

$$x = \frac{1}{f}$$

$$S_v = a \left(\frac{1-q^k}{1-q} \right) = 1 \left(\frac{1 - \frac{1}{121}}{1 - \frac{1}{f}} \right)$$

$$= \frac{A + 12V}{121} = \frac{12V}{1}$$

$$a_1 = 2fr \quad \times a_1 \quad \left(1 + q + q^r + q^r + q^f = \frac{121}{11} \right) \rightarrow a + aq + aq^r + aq^r + aq^f = \frac{121}{11} \times \frac{121}{11} = 121$$

$$d = \frac{4r}{f} = \frac{21}{f} \rightarrow \frac{1}{f}, \frac{2r}{f}, \frac{4f}{f}, \frac{40}{f}, \frac{14}{f}, \frac{1 \cdot V}{f}, \frac{121}{f}$$

$$q^r = 4f \rightarrow q = 2 \rightarrow 1, 2, f, \frac{B}{1}, 14, 22, 4f$$

$$A + B = \frac{40 + 14}{f} = \frac{11}{f}$$

$$= f \cdot 11$$

$$a_{1,1} = a_1$$

$$-2f, -\frac{40}{f}, -$$

$$121, a^r -$$

$$a + 1 \cdot d = -2f + \left(\frac{40}{f} \right) \quad d = \frac{-40 + 44}{f} = \frac{4}{f}$$

$$a_{1,1} = 1 = a_n = aq^v \rightarrow 1 = 121q^v$$

$$q^v = \frac{1}{121} \rightarrow q = \frac{1}{f}$$

$$(a_v)^r = a_r a_1$$

$$(a + 4d)^r = (a + 2d)(a + 1d)$$

$$a^r + 24d^r + 12ad = a^r + 1ad + 2ad + 4d^r$$

$$2 \cdot d^r + 2ad = 0 \rightarrow d(2d + 2a) = 0 \rightarrow d = 0$$

$$2ad = -2a \rightarrow d = -\frac{1}{f}a$$

④

⑤

⑥

③

$$a_r a_v = a_f \rightarrow (a+d)(a+vd) = (a+rd)^r$$

$$a^r + vad + da + vda = a^r + rd^r + rad$$

$$rd^r - rad = 0$$

$$rd(d-a) = 0 \rightarrow \begin{cases} d=0 & \text{حالت اول} \\ d=a & \text{حالت دوم} \end{cases}$$

نیز:

$$a+b, a+rd, a+vd, \dots \rightarrow ra, ra, ra, \dots \rightarrow q=r$$

$$t_1 = aq^q \rightarrow \frac{1}{r} \times r^q = r^q = 121$$

$$① \quad ra_r = raq$$

$$raq^r = aq^r + raq$$

$$② \quad ra_r = raq^r$$

$$rq = q^r + r \rightarrow q^r - rq + r = 0$$

$$③ \quad a_f = aq^r$$

$$(q-r)(q-1) = 0 \rightarrow \boxed{q=r}, q=1 \text{ غیر مجاز}$$

همین:

$$\underbrace{a_{1r} + n}_{-1+n}, \underbrace{a_{11} + n}_{\frac{1}{r}+n}, \underbrace{a_{1f} + n}_{\frac{a}{r}+n}$$

$$\left(\frac{1}{r} + n\right)^r = (-1+n) \left(\frac{a}{r} + n\right)$$

$$\frac{1}{14} + n^r + \frac{1}{r}n = -\frac{a}{r} - n + \frac{a}{r}n + n^r$$

$$\frac{1}{14} + \frac{a}{r} = \frac{1}{r}n - \frac{1}{r}n$$

$$\frac{1+20}{14} = \frac{n-2n}{r} \rightarrow \frac{21}{14} = \frac{-n}{r} \rightarrow n = -\frac{21}{r}$$

$$a_n = a_1 + (n-1)d$$

$$a_f = r + \left(-\frac{r}{r}\right) = \frac{a}{r}$$

$$a_n = r + \left(-\frac{r}{r}\right) = \frac{1}{r}$$

$$q_r = r - r = -1$$

همین:

$$-\frac{14}{r}, -\frac{20}{r}, -\frac{25}{r}, \dots$$

$$q = \frac{-\frac{20}{r}}{-\frac{14}{r}} = \frac{+20 \cdot d}{+14 \cdot d} = \frac{a}{r}$$

همین $a_1, a_f, a_v \rightarrow a + a_f + a_v = vr$

همین $a_1, a_r, a_1 \rightarrow a = a_1 \rightarrow d = aq^r - a = a(q^r - 1)$

$$aq^q = a + q(a(q^r - 1))$$

$$q^q = 1 + q(q^r - 1)$$

$$q^q - q(q^r + 1) = 0 \rightarrow (q^r - 1)(q^r - 1) = 0$$

$$q^r = 1, 1 \rightarrow q = r, 1$$

$$q=1 \rightarrow ra = vr$$

$$a = \frac{vr}{r}$$

$$d = \frac{vr}{r} (1-1) = \boxed{d=0}$$

$$q=r \rightarrow a + 1a + 4ra = vr$$

$$vra = vr \rightarrow a = 1$$

$$d = 1 (1-1) \rightarrow \boxed{d=v}$$