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$$\frac{a}{q} + a + aq = 21. \quad \frac{a}{q} \times a \times aq = 48$$

$$a^3 = 48 \rightarrow a = 4$$

$$\frac{4}{q} + \frac{4q}{q} + \frac{4q^2}{q} = \frac{4 + 4q + 4q^2}{q} = 21 \rightarrow 21q = 4 + 4q + 4q^2$$

$$4q^2 - 17q + 4 = 0 \rightarrow q^2 - 17q + 14 = 0 \rightarrow (q-14)(q-1) = 0 \rightarrow \begin{cases} q = \frac{14}{4} \times \\ q = \frac{1}{4} \checkmark \end{cases}$$

$$x^2 + 4, 2x, x^2 - 2 \rightarrow 4x^2 = (x+4)(x-2) \rightarrow 4x^2 = x^2 + 2x - 8$$

$$x^2 - 2x - 8 = 0 \rightarrow (x+2)(x-4) = 0 \rightarrow \begin{cases} x = -2 \text{ و } 4 \\ x = 2 \rightarrow x = \pm 2 \end{cases}$$

$$x = -2 \rightarrow 8, -4, 2 \rightarrow \text{مجموعه } x$$

$$S_v = a_1 \left(\frac{q^n - 1}{q - 1} \right) = 8 \left(\frac{\left(\frac{1}{4} \right)^5 - 1}{\frac{1}{4} - 1} \right) = \frac{-127 \times 8}{-\frac{3}{4}} = \frac{127 \times 8}{3} \checkmark$$

$$u_n = a + aq + aq^2 + aq^3 + aq^4$$

$$a(1 + q + q^2 + q^3 + q^4) = 127 \times \frac{121}{11} = 127 \times 11 \checkmark$$

$$\frac{b-a}{n+1} = \frac{48-1}{5+1} = \frac{47}{6} = \frac{21}{2} = 10.5 \rightarrow 1, 11, 21, 31, 41, 51, 61$$

$$q^{n+1} = \frac{b}{a} = \frac{48}{1} \Rightarrow q^{n+1} = 48 \rightarrow q^5 = 48 \rightarrow q = \sqrt[5]{48} \rightarrow 1, 2, 4, 8, 16, 32, 64$$

$$A+B_1 = 32, 5+1 = 37 \checkmark, A+B_2 = 16, 5 = 21 \checkmark, A+B_3 = 8, 5 = 13 \checkmark, A+B_4 = 4, 5 = 9 \checkmark, A+B_5 = 2, 5 = 7 \checkmark$$

$$-48, -\frac{48}{q} \rightarrow a_n = -48/q^{n-1} \rightarrow a = 1$$

$$aq^5 = 1 \rightarrow 1/n \times q^5 = 1 \rightarrow q = \frac{1}{n} \checkmark$$

$$a_r, a_v, a_g$$

$$a+rd, a+gd, a+nd \rightarrow (a+gd)^r = (a+nd)(a+rd)$$

$$a^r + r^2gd^r + 1rd = a^r + 1oad + 1gd^r$$

$$r^2gd^r = -rad \rightarrow d = \frac{-a}{10} \checkmark$$

$d = 0$ * حواسنه جوتن حفره از مقایزه بوی جلات تیره $d = 0$ نیز قابل قبول است!

$$a_r, a_g, a_n$$

$$a+d, a+rd, a+vd \rightarrow (a+rd)^r = (a+d)(a+vd) \rightarrow a^r + r^2gd^r + 1rd = a^r + vd^r + 1ad + rvd$$

$$\rightarrow d = a \rightarrow \begin{cases} a_r = ra \\ a_g = ga \\ a_n = na \end{cases}$$

هندسی: a_r
هندسی: $\frac{1}{r}$ و $ra = r \times \frac{1}{r} = 1$ و $a_g = 1$ و $a_n = r \rightarrow q = r$

$$a_{10} = aq^9 = \frac{1}{r} \times r^9 = r^8 = 128 \checkmark$$

$$a+rd = aq$$

$$a+gd = aq^r$$

$$a+nd = aq^r$$

$$raq, r(aq^r), aq^r$$

$$raq^r = \frac{raq + aq^r}{r} \rightarrow \epsilon aq^r = aq(r+q^r)$$

$$\epsilon q = r+q^r \rightarrow \epsilon q - r - q^r$$

$$q^r - \epsilon q + r = 0 \rightarrow (q-1)(q-r) = 0 \begin{cases} q = 1 \times \\ q = r \checkmark \end{cases}$$

$$\text{حسابی: } r, \frac{v}{\epsilon}, \dots \rightarrow d = -\frac{1}{\epsilon}$$

$$a_g, a_n, a_{13}$$

$$\frac{a}{\epsilon} + x, \frac{1}{\epsilon} + x, -1+x \rightarrow \left(\frac{1}{\epsilon} + x\right)^r = \left(\frac{a}{\epsilon} + x\right)(-1+x) \Rightarrow x = -\frac{r1}{\epsilon}$$

$$\frac{a}{\epsilon} - \frac{r1}{\epsilon}, \frac{1}{\epsilon} - \frac{r1}{\epsilon}, -1 - \frac{r1}{\epsilon}$$

$$-\frac{14}{\epsilon}, -\frac{10}{\epsilon}, -\frac{10}{\epsilon} \rightarrow q = \frac{a}{\epsilon} \checkmark$$

$$\begin{cases} a+b = aq^r \\ a+gd = aq^r \end{cases} \rightarrow aq^r - a = d \rightarrow a(q^r - 1) = d \rightarrow q^r - 1 = \frac{d}{a}$$

$$-a+b = -a^r \rightarrow 1d = aq^r - aq^r \rightarrow q = r \rightarrow a(1+q^r+q^4) = v^3$$

$$a+gd = aq^r \rightarrow 1d = aq^r(q^r - 1) \rightarrow a(1+1+4\epsilon) = 13 \rightarrow a = 1$$

$$a+d = aq^r$$

حالت دوم (بنا نه ثابت) $\rightarrow q = 1$ $d = 0$ $1+d=1 \rightarrow d = v \checkmark$