

الناسبياني ٢. آفرين به سماء معتقون خيبر كامل فوخته بدي

Subject...

Day... Month... Year...

$$1 \quad \{1\}, \{2, 3, 4\}, \{5, \dots, 11\} \quad (1)$$

$$2 \quad \downarrow \quad \downarrow$$

$$3 \quad 1^2 + 1 = 1^2 + 1 \quad 9^2$$

$$4 \quad \Rightarrow b = \frac{a+c}{2} = \frac{1^2+1+9^2}{2} = \frac{146}{2} = 73 \quad (2)$$

$$5 \quad \{1, 2, 3\}, \{4, 5, 6, \dots, 12\}, \{13, 14, \dots, 29\}, \{30, 31, \dots, 100\} \quad (2)$$

$$6 \quad \Rightarrow \{121, 122, \dots, 299\} \Rightarrow \frac{299 + 121}{2} = 210 \quad (2)$$

$$7 \quad 2^k; n = ck \Rightarrow n = 0, 2, 4, 6 \Rightarrow 2^0, 2^1, 2^2, 2^3 \Rightarrow 1, 2, 4, 8 \quad (3)$$

$$8 \quad = 2^k + 2; n = ck + 1 \Rightarrow n = 1, 3, 5 \Rightarrow -2(0) + 2, -2(1) + 2$$

$$9 \quad \text{و } -2(2) + 2 \Rightarrow 2, 0, 0 \quad (3)$$

$$10 \quad \left\{ \frac{n}{k+r} \right\} + a, n = ck + r \Rightarrow n = 2, 0, 1 \Rightarrow \left\{ \frac{2}{0+2} \right\} + a$$

$$11 \quad \left\{ \frac{0}{1+2} \right\} + a, \left\{ \frac{1}{2+2} \right\} + a \Rightarrow 1+a, 1+a, 2+a \Rightarrow$$

$$12 \quad S_1 = 1+2+4+1+2+0+1+a+1+a+2+a = 19$$

$$13 \quad \Rightarrow 20 + 5a = 19 \Rightarrow a = -1$$

$$14 \quad a_1 + a_2 + \dots + a_{29} \xrightarrow{n=ck+r} \left\{ \frac{2}{0+2} \right\} + a, \left\{ \frac{0}{1+2} \right\} + a, \dots, \left\{ \frac{29}{29+2} \right\} + a$$

$$15 \quad \Rightarrow 1-2+1-2+1(2-2) = -2$$

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$$t_n = an^r + bn + c \quad a = \frac{1}{v} \cdot (-a_0) \quad a = -\frac{1}{8} \Rightarrow t_n = -\frac{1}{8}n^r \quad (r)$$

$a_8 = 12$

$$+ bn + c$$

$$t_8 = 12 \Rightarrow -\frac{1}{8}(8^r) + b(8) + c = 12 \rightarrow 8b + c = 19 \xrightarrow{\ominus} b = \frac{5}{8}$$

$c = -1$

$$t_v = 1v, r \Rightarrow -\frac{1}{8}(v^r) + b(v) + c = 1v, r \rightarrow vb + c = rv$$

$$t_n = -\frac{1}{8}n^r + 2n - 1 \Rightarrow t_{1,8} \div t_1 = 12 \div \frac{12}{8} = 8$$

$$\begin{cases} a = 2 = b_r \\ a_1 + cd = b_1 + d' \end{cases}$$

$$\begin{cases} a_n = b_v \\ a_1 + vd = b_1 + vd' \end{cases}$$

$$b_1 = 0 \quad \frac{b_1 0}{d} = \frac{b_1 + 12d'}{d} \Rightarrow \frac{b_1 + 0d'}{d} = \frac{8d'}{d}$$

$$a_n - a_2 = b_v - b_r$$

$$8d = 8d' \Rightarrow \frac{d'}{d} = \frac{2}{8} \Rightarrow 8 \times \frac{2}{8} = 2$$

$$4(a+d)^r = 8(a+rd) \quad a + c(a+d)a \Rightarrow 4a^r + 4d^r + 12ad \quad (r)$$

$$= 0a^r + 12ad + 4a^r + 4d^r \Rightarrow 0 = 4a^r - 4d^r + ad \Rightarrow$$

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$$(ra - cd)(a + rd) = 0 \Rightarrow \begin{cases} \textcircled{1} a = \frac{cd}{r} \Rightarrow \frac{a}{d} = \frac{a+cd}{d} \\ \textcircled{2} a = -rd \end{cases}$$

$$\Rightarrow \begin{cases} \textcircled{1} \frac{\frac{cd}{r} + cd}{d} = \frac{q}{r} \end{cases}$$

$$\begin{cases} \textcircled{2} \frac{-rd + cd}{d} = 1 \end{cases}$$

$$\begin{array}{c} a, b, c \xrightarrow{\text{ratio}} b, \frac{a}{r}, \frac{c}{s} \Rightarrow a+d, \frac{a}{r}, \frac{a+rd}{s} \\ \downarrow \quad \downarrow \quad \downarrow \\ a, a+d, a+rd \end{array} \quad (v) \quad \textcircled{2}$$

$$\Rightarrow \frac{\frac{a}{r}}{a+d} = \frac{\frac{a+rd}{s}}{\frac{a}{r}} \Rightarrow \frac{a}{ra+rd} = \frac{ra+rd}{ra} \Rightarrow \cancel{ra} - \cancel{ra} + rd^r$$

$$+rd \Rightarrow r(rd) = r(-cd) \Rightarrow d(rd + ca) = 0$$

$$\Rightarrow \begin{cases} \textcircled{1} d=0 \text{ و } r \neq 0 \\ \textcircled{2} rd + ca = 0 \Rightarrow a = -\frac{rd}{r} \Rightarrow q = \frac{a}{r} = \frac{-d}{r} = -1 \end{cases}$$

$$\Rightarrow rq = r \times (-1) = -r \quad \checkmark$$

ject.

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$$b, c \xrightarrow{c \rightarrow b} r b, r a, c \Rightarrow r a q, r a, a q^r \Rightarrow \quad (1)$$

$$\downarrow$$

$$a q, a q^r$$

$$-r a = r a - r a q \Rightarrow a q^r - \sum a + \sum a q = 0 \Rightarrow a(q-1)(q+2) = 0$$

$$) a = 0 \times 00 \sum$$

$$) q = 1 \times 00 \sum$$

$$) q = -2$$

$$\frac{a q}{a q^0} = \frac{a q^1}{a q^0} = q^c = (-2)^c = -4 \sum$$

$$\frac{a^r}{(q)^r} = r \Rightarrow \frac{a q^0}{a^c q^c} + \frac{a q}{a^r} = r \Rightarrow \frac{q^r + a q}{a^r} = r \quad (9)$$

$$a^r - q^r - a q = 0 \Rightarrow (r a + q)(a - q) = 0 \Rightarrow \begin{cases}) q = -r a \\) a = q \end{cases}$$

$$\begin{cases}) \frac{a^r}{a q} = \frac{a^r}{a^r} = 1 \\) \frac{a^r}{a q} = \frac{a^r}{-r a^r} = -\frac{1}{r} \end{cases}$$

$$\sqrt{a \sum} \Rightarrow (a q^r)^r = a q^c \Rightarrow a^r q^{\sum} = a q^c \Rightarrow a q = 1 \quad (1)$$

$$= a q^{\sum} = r \sum = \cancel{a q} \times q^c = c^c \Rightarrow q = c \Rightarrow a(c^c) = r \sum \Rightarrow a = \frac{1}{r}$$

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$$a, b, c \xrightarrow{c \leftrightarrow b} r_b, r_a, c \Rightarrow r_a q, r_a, a q^r \Rightarrow$$
$$\downarrow \quad \downarrow$$
$$a, a q, a q^r$$

$$a q^r - r_a = r_a - r_a q \Rightarrow a q^r - \epsilon a + \epsilon a q = 0 \Rightarrow a(q-1)(q+\epsilon) = 0$$

$$\Rightarrow \begin{cases} \textcircled{1} a = 0 \times 60\epsilon \\ \textcircled{2} q = 1 \times 60\epsilon \\ \textcircled{3} q = -\epsilon \end{cases}$$

$$\Rightarrow \frac{a q}{a q^0} = \frac{a q^1}{a q^0} = q^\epsilon = (-\epsilon)^\epsilon = -\epsilon$$

$$\frac{a_q}{(a_r)^\epsilon} + \frac{a_r}{(a)^\epsilon} = r \Rightarrow \frac{a q^0}{a^\epsilon q^\epsilon} + \frac{a q}{a^r} = r \Rightarrow \frac{q^r + a q}{a^r} = r$$

$$\Rightarrow r a^r - q^r - a q = 0 \Rightarrow (r a + q)(a - q) = 0 \Rightarrow \begin{cases} \textcircled{1} q = -r a \\ \textcircled{2} a = q \end{cases}$$

$$\Rightarrow \frac{a^r}{a_r} = \begin{cases} \textcircled{1} \frac{a^r}{a q} = \frac{a^r}{a^r} = 1 \\ \textcircled{2} \frac{a^r}{a q} = \frac{a^r}{-r a^r} = -\frac{1}{r} \end{cases}$$

$$a_r = \sqrt{a_\epsilon} \Rightarrow (a q^r)^r = a q^\epsilon \Rightarrow a^r q^\epsilon = a q^\epsilon \Rightarrow a q = 1$$

$$\Rightarrow a_\delta = a q^\epsilon = r v = a q \times q^\epsilon = \epsilon^\epsilon \Rightarrow q = \epsilon \Rightarrow a(\epsilon^\epsilon) = r v \Rightarrow a = \frac{1}{r}$$

$$\Rightarrow \frac{1}{r} - \frac{1}{r} = \frac{1}{\epsilon}$$