

بينا قرائتي مع تجربتي ونجدة (قرائتي)

(1)

$$a_n = \frac{1}{2}, 1, 2, \dots$$

(الف)

$$a_n = \frac{1}{2} (2)^{n-1} \rightarrow a_{10} = \frac{1}{2} (2)^9 = 2^8 = 256$$

$$\frac{a_{14}}{a_{12}} = \frac{2^{14}}{2^{12}} = 2^2 \rightarrow 2^2 = 4$$

(ب)

(ج)

$$b^2 = a_1 \rightarrow b^2 = a_1 \times a_{10} \rightarrow b^2 = a_1 \times 2^9$$

$$b = a_1 \times 2^4 = 1 \times 2^4 = 2^4 = 16$$

(د)

$$128 = \frac{1}{2} (2)^{n-1} \rightarrow 2^{n-1} = 256 \rightarrow n-1 = 8 \rightarrow n = 9$$

(2)

$$a_5 = 16$$

$$a_n = a_4 = \frac{16}{2} \times 2^2 \rightarrow 2^2 = 4 \rightarrow 2^2 = 4$$

$$a_{10} = a_1 \times 2^9 = 1 \times 2^9 = 512$$

9

$$a_1 + a_2 + \dots + a_n = 1 \Rightarrow a_1 + a_2 q \rightarrow a_1(1+q) \Rightarrow a_1(1+q)(1+q^2)$$

$$a_2 + a_3 + \dots + a_n = 1 \Rightarrow a_2 q + a_3 q^2 \rightarrow a_2 q(1+q)$$

$$\frac{a_1(1+q)(1+q^2)}{a_2 q(1+q)} = \frac{1}{1} \rightarrow \frac{a_1(1+q^2)}{a_2} = 1$$

$$1 \rightarrow 1 + q + q^2 = 1 \rightarrow q^2 - 1 \cdot q + 1 = 0$$

$$q^2 - 1 \cdot q + 1 = 0$$

$$q = \frac{1}{2} \rightarrow a_1 + a_2 + \dots + a_n = 1$$

$$q = 1 \rightarrow a_1 = 1 \quad a_2 = 1 \quad a_3 = 1 \quad a_4 = 1 \quad a_5 = 1 \quad a_6 = 1$$

$$a_1 + a_2 + \dots + a_n = \frac{1}{q} a = 1$$

$$a_1 = 1$$

$$(q-1)(q-1) = 0$$

$$a_1 + a_2 + \dots + a_n = 1 \rightarrow a_1 + a_2 = 1$$

$$a_1 + a_2 + \dots + a_n = 1 \rightarrow a_1 + a_2 + a_3 + a_4 + a_5 + a_6 = 1$$

$$\frac{1}{q} + \frac{1}{q} + \frac{1}{q} + \frac{1}{q} + \frac{1}{q} + \frac{1}{q} = 1$$

$$\frac{1+1+1+1+1+1}{q} = 1 \rightarrow 6 = q$$

$$q^2 - 1 \cdot q + 1 = 0$$

$$q^2 - 1 \cdot q + 1 = 0$$

$$(q-1)(q-1) = 0$$

$$q = 1$$

$$q = 1 \rightarrow 1 \rightarrow 1 \rightarrow 1 \rightarrow 1 \rightarrow 1 \rightarrow 1$$

$$r \times r^{n-1} \xrightarrow{n=10} r \times r^9$$

$a_n = 2, 4, 16, \dots$

$\xrightarrow{\times r} \quad \xrightarrow{\times r}$

$$S_{10} = a_1 \left(\frac{1-r^{10}}{1-r} \right) = \cancel{2} \left(\frac{1-\cancel{r^{10}}}{1-\cancel{r}} \right) = \frac{(1-r^{10})}{(1-r)} = 4 \times 9.47$$

مقدار $\frac{1}{10}$

$$= (a_1 \times a_{10})^{\frac{1}{10}} = (a_1 \times a_{10})^{\frac{1}{10}} = \frac{(2 \times 16)^{\frac{1}{10}}}{10}$$

a_1, a_2, a_3

$\frac{a}{(a_2 - a_1)}, \frac{b}{(a_3 - a_2)}, \frac{c}{(a_4 - a_3)}, \dots$

$\rightarrow a(q-1), aq(q-1), aq^2(q-1), \dots$

$\xrightarrow{\times q} \quad \xrightarrow{\times q}$

تقریب

$\sqrt{10} \approx 3.16$

$$b^2 = ac = 161$$

$$(a_3 - a_2)^2 = (a_2 - a_1)(a_4 - a_3)$$

$$a_3^2 + a_2^2 - 2a_2a_3 = a_2a_4 - a_2a_3 + a_1a_4 + a_1a_3$$

$$a^2q^6 + a^2q^4 - 2 \times a^2q^5 = a^2q^6 - a^2q^5 - a^2q^4 + a^2q^3$$

$$\underbrace{a^2q^6 + a^2q^4 - 2a^2q^5}_{\uparrow} = \underbrace{a^2q^6 - 2a^2q^5 + a^2q^4}_{\uparrow}$$

$$S_n = \frac{n}{2} (2a + (n-1)d)$$

$$a_1 + a_2 + a_3 + \dots + a_n$$

$$S_2: a_1 + a_2 = a_1 + a_1 + d = 2a_1 + d$$

$$S_3: a_1 + a_2 + a_3 = a_1 + a_1 + d + a_1 + 2d = 3a_1 + 3d$$

$$S_4: a_1 + a_2 + a_3 + a_4 = a_1 + a_1 + d + a_1 + 2d + a_1 + 3d = 4a_1 + 6d$$

$$\frac{n}{2} (2a_1 + (n-1)d) = \frac{n}{2} (2a_1 + (n-1)d)$$

$$S_n = a \left(\frac{q^n - 1}{q - 1} \right)$$

$$S_n: a_1 + a_1q + a_1q^2 + a_1q^3 + \dots + a_1q^{n-1} = A$$

$$S_n \times q: a_1q + a_1q^2 + a_1q^3 + \dots + a_1q^n = qA$$

$$S_n - S_n(q) = a_1 - a_1q^n$$

$$S_n(1-q) = a_1(1-q^n)$$

$$S_n = \frac{a_1(1-q^n)}{(1-q)}$$