

$$a_n = \frac{1}{n}, 1, 2, \dots \quad \begin{cases} a_1 = 1 \\ a_2 = \frac{1}{2} \end{cases}$$

$$a_1, 2, a_2 \rightarrow \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{4} \quad (1)$$

$$a_1, 2, a_2 \rightarrow \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{4} \quad (2)$$

$$\sqrt{1 + 2^2} = 2 \quad \left(\frac{1}{2} \right)^{n-1} = 1 \quad n=2 \quad \left(\frac{1}{2} \right)^{n-1} = 1 \quad n=2$$

$$a_1 = 1, a_2 = \frac{1}{2} \quad \frac{a_2}{a_1} = \frac{1}{2} = \frac{1}{2} \rightarrow a_1 = 1, a_2 = \frac{1}{2}$$

$$a_1 = 1, a_2 = \frac{1}{2} \rightarrow a_1 = \frac{1}{2}, a_2 = \frac{1}{4} \quad t_1, 2, a_2 \rightarrow \frac{1}{2} \left(\frac{1}{2} \right)^2 = \frac{1}{4} \quad (3)$$

$$a_1, a_2, a_3, a_4, a_5 = 1, 2, 3, 4, 5 \rightarrow (a_1) = 1, 2, 3 \rightarrow a_1 = 1 \quad (4)$$

$$a_1, 2, a_2 = a_3, a_4 = 1, 2, 3 \rightarrow (5)$$

$$a_1 = 1, a_2 = \frac{1}{2} \rightarrow \frac{a_2}{a_1} = \frac{1}{2} = \frac{1}{2} \rightarrow a_1 = 1, a_2 = \frac{1}{2} \quad (6)$$

$$a_1 = 1, a_2 = \frac{1}{2} \rightarrow (7)$$

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$$\frac{a_1}{a_2} = \frac{a_2}{a_3} \rightarrow \frac{1}{\frac{1}{2}} = \frac{\frac{1}{2}}{a_3} \Rightarrow a_3 = \frac{1}{4}$$

$$\Rightarrow a_1 = 1, a_2 = \frac{1}{2}, a_3 = \frac{1}{4}$$

$$\Rightarrow a_1 = 1, a_2 = \frac{1}{2}, a_3 = \frac{1}{4} \rightarrow a_1 = 1, a_2 = \frac{1}{2}, a_3 = \frac{1}{4}$$

$$a, aa, aa^2, aa^3 \begin{cases} a+aa^2=1 \\ aa+aa^3=1 \end{cases} \rightarrow a(1+a^2)=1 \rightarrow a=\frac{1}{1+a}$$

$$\frac{1}{a(1+a)}(1+a^2)=1 \rightarrow \frac{1+a^2}{1+a}=1 \rightarrow 1+a^2=1+a$$

$$\Rightarrow a^2 - a + 1 = 0 \Rightarrow \begin{cases} a = \frac{1 \pm \sqrt{5}}{2} \\ a = \frac{1 \pm \sqrt{5}}{2} \end{cases} \rightarrow \frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2}$$

$$a_1 + a_2 + a_3 = 1$$

$$\begin{cases} a_1 = 1 \\ a_2 = \omega \\ a_3 = \omega^2 \end{cases}$$

بالنفسه، و كذا...

$$a_n = \omega^n, a_{n+1} = \omega^{n+1} \rightarrow \begin{cases} a_1 = \omega \\ a_2 = \omega^2 \end{cases} \quad (\text{الف})$$

$$S_n = \sum_{k=1}^n \omega^k = \frac{\omega(1-\omega^n)}{1-\omega}$$

$$\sqrt{(a_1 x_n)^n} = \left(\frac{a_1 x_n}{n} \right)^{\frac{n}{2}} = \frac{a_1 x_n}{2} = \frac{1}{2} \quad (\text{ب})$$

$$a, aa, aa^2, aa^3 \rightarrow a - aa, aa - aa^2, aa^2 - aa^3$$

$$d = q$$

$$\begin{aligned} f(n) &= a + (n-1)d + (n-1)d + \dots + (n-1)d \\ &= a + (n-1)d + (n-1)d + \dots + (n-1)d \\ &= a + (n-1)d + (n-1)d + \dots + (n-1)d \end{aligned}$$

$$S_n = a + aa + \dots + aa^{n-1} = a(1 + a + \dots + a^{n-1})$$

$$S_n - S_{n-1} = a - aa^{n-1} = a(1 - a^{n-1})$$