

$$a_1 + a_2 + a_3 = 1$$

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

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

$$\mu(1-q+q^2) = 1 \rightarrow \mu q^2 - 1 + q + \mu = 0$$

$$\Delta = 1 - 4\mu$$

$$q = \frac{1 \pm \sqrt{1-4\mu}}{2} = \frac{1 \pm \sqrt{1-4\mu}}{2}$$

$$a_1 \xrightarrow{q=1} 1$$

$$a_2 \rightarrow \mu$$

$$a_3 \rightarrow q$$

$$a_4 = \sqrt{1-4\mu}$$

نیز داریم

$$a_1 + a_2 + a_3 = 1$$

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$$(1-\mu) = 1 \Rightarrow \mu = 0$$

$$a_1 + a_2 + a_3 = 1$$

$$a_1 + a_2 + a_3 = 1 \rightarrow a_1 = 1 \quad a_2 = \frac{1}{2}$$

$$\frac{1}{2} (1+q+q^2) = 1 \quad \mu(1+q+q^2) = 1 \rightarrow \mu q^2 - 1 + q + \mu = 0$$

$$\Delta = 1 - 4\mu = 1 - 4 \cdot \frac{1}{4} = 0$$

$$r = \frac{1}{r} = \frac{1}{1} = 1$$

$$S_n = a \left(\frac{q^n - 1}{q - 1} \right) \times \left(\frac{r^n - 1}{r - 1} \right) = r^n - 1 = 290FA - 1 = \boxed{290FA} \quad \therefore \text{Q}$$

$a_1/q_1 / a_1 q_1^r - -$
 $(a_1 q_1 - a_1) , (a_1 q_1^r - a_1 q_1) , (a_1 q_1^r - a_1 q_1^r)$
 $\underbrace{a_1(q-1)}_{\tau_1} , \underbrace{a_1 q(q-1)}_{\tau_2} , \underbrace{a_1 q^r(q-1)}_{\tau_3}$
 $\frac{\tau_2}{\tau_1} = \frac{a_1 q(q-1)}{a_1(q-1)} = q$
 $\frac{\tau_3}{\tau_2} = \frac{a_1 q^r(q-1)}{a_1 q(q-1)} = q$
 فاصله های مجاور به نسبت ۱ به ۱ در دنباله هندسی است و ۱ است.

$$S_n = a \left[\frac{q^n - 1}{q - 1} \right] \quad a, aq, aq^2, aq^3, aq^4, \dots, aq^{n-1} \quad (ب)$$

r) $\sin q = a_1 q + a_2 q^2 + \dots + a_n q^n$