

۱۹, ۵

$$q = 2$$

$$a_n = \frac{1}{r} \cdot 1, 2, 3, \dots$$

$$a_n = r^{n-2}$$

$$a_2 = 2^{1-2} = \frac{1}{2}$$

$$b) \frac{a_{11}}{q_{11}} = \frac{aq^9}{aq^{11}} = q^2 = 1/4$$

$$ج) a_2 \times a_{10} = a_n^2 = 2^2 \times 2^1 = 2^3$$

$$د) 128 = 2^{y-2} = 2^7 \Rightarrow y = 9$$

$$a_5 = 12 = aq^4$$

$$\frac{q_9}{12} = q^9 = 1 = 2^0 \Rightarrow q = 2$$

$$a_8 = 99 = aq^7$$

$$q = q_8 \times q^7 = 99 \times 4 = 396$$

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 2 \times 4 \times 8 \times 16 \times 32 = a^5 \times q^{10} = (aq^2)^5 \Rightarrow aq^2 = \sqrt[5]{2 \times 4 \times 8 \times 16 \times 32} = 8$$

$$الف) a_3 = aq^2 = 8$$

$$ب) a_1 \times a_5 = a \times aq^4 = a^2 q^4 = (aq^2)^2 = 8^2 = 64$$

$$r^b, \sqrt{r}, r^a \quad (\sqrt{r})^2 = r^a \times r^b = r^{2a+b} = r^a \Rightarrow \omega = a+b$$

$$\frac{a+b}{r} = \frac{a}{r} = 2/5$$

$$a_r, a_v, a_{11}$$

$$aq^r, aq^v, aq^{10}$$

$$1-x, x, x+1$$

$$x^2 = (x+1)(1-x) = x - x^2 + 1 - x$$

$$2x^2 = 1$$

$$x^2 = \frac{1}{2} \quad x = \pm \frac{1}{\sqrt{2}}$$

مقدارهای x

$$a_r + a_r = 12 \quad aq + aq^r = 12 \quad aq(1+q) = 12 \quad a = \frac{12}{q(1+q)} = \frac{12}{2+9} = \frac{1}{3}$$

$$a_1 + a_2 = 21 \quad a + aq^r = 21 \quad a(1+q^r) = 21 \quad \frac{12(1+q^r)}{q(1+q)} = 21 \Rightarrow 12 + 12q^r = 21q + 21q^r$$

$$\Rightarrow 12q^r - 7q^r - 7q + 12 = 0 \Rightarrow 5q^r - 7q + 12 = 0 \Rightarrow q^r - 10q + 12 = 0$$

۲۷ برتر است

$$\frac{a}{d} > a, ad \quad \frac{a}{d} \times a \times ad = a^3 = 27 \Rightarrow a = 3$$

$$\frac{w}{d} + r + 4d = 12 \xrightarrow{\times d} w + rd + 4d^2 = 12d \Rightarrow rd - 10d + 12 = 0 \Rightarrow d^2 - 10d + 12 = 0$$

$$\Rightarrow (d-4)(d-3) = 0 \Rightarrow d = 4 \rightarrow d = \frac{1}{3} \Rightarrow ra > a, \frac{a}{r}$$

$$\left(\begin{matrix} a_1 \\ a_2 \\ a_3 \end{matrix} \right) = \left(\begin{matrix} 1 \\ 3 \\ 9 \end{matrix} \right)$$

$$a_n = 2, 4, 8, \dots \quad q = 2 \quad ب) p = (a \times a_{10})^5 = (2 \times 2 \times 2^9)^5 = 2^{10} \times 2^{45}$$

$$الف) S_5 = \frac{a(q^5-1)}{q-1} = \frac{2(2^5-1)}{2-1} = \frac{2(31)}{1} = 62$$

$$a_1 - a_1, a_2 - a_1, a_3 - a_1, \dots$$

$$a, aq, aq^2$$

$$aq - a, aq^2 - aq, aq^3 - aq^2, \dots$$

$$a(q-1), aq(q-1), aq^2(q-1)$$

قدرت (مثل دنباله اول)

بیم دنباله قبل (q-1) دارد
پس قدرت دنباله جدید
(a(q-1)) است

$$الف) S_n = a_1 + a_2 + a_3 + \dots + a_{n-1} + a_n = a + a + d + a + 2d + \dots + a + (n-1)d + a + (n-1)d$$

$$ب) q(a_1 + a_2 + a_3 + \dots + a_{n-1} + a_n) = qS_n$$

$$aq^n + S_n - a = qS_n \Rightarrow S_n(q-1) = a(q^n-1) \Rightarrow S_n = \frac{a(q^n-1)}{q-1}$$