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$$\frac{1}{r}, \frac{1}{r^2}, \dots$$

$$a_n = \frac{1}{r} (r)^{n-1}$$

$$\frac{1}{r} (r)^9 = 256$$

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$$\frac{a_{10}}{a_1} = \frac{a_1 r^9}{a_1} = r^9 = 256$$

$$(a_1 r^9)(a_1 r^1) = 256 \Rightarrow r^2 = 16 \Rightarrow r = 4$$

$$\frac{1}{r} r^{n-1} = 128 \Rightarrow r^{n-2} = 128 \Rightarrow (r^2)^{n-2} = 2^7 \Rightarrow n = 9$$

$$a_1 r^6 = 12$$

$$a_1 r^9 = 96$$

$$\frac{a_1 r^9}{a_1 r^6} = r^3 = 8 \Rightarrow r = 2$$

$$a_1 (r)^6 = 12 \Rightarrow a_1 = \frac{12}{64}$$

$$a_{10} = \frac{12}{64} (2)^9 = 12 \times 8 = 96$$

$$\frac{a_1}{r^9} \times \frac{a_1}{r^1} \times \dots \times a_1 r^9 \times a_1 r^1 \rightarrow a_1^2 = 256 \Rightarrow a_1 = 16$$

$$a_1 \times a_9 \rightarrow \frac{a_1}{r^9} \times a_1 r^9 \rightarrow a_1^2 = 9$$

$$\frac{r^9}{r^1} = \frac{r^b}{r^1} \rightarrow r^8 = r^b \Rightarrow r^8 = r^4 \Rightarrow a+b = 4$$

$$\frac{a+b}{r} \rightarrow \frac{4}{r} = 1/4$$

$$\frac{a_n}{a_1} = \frac{n}{1-n} = q^9$$

$$\frac{a_{10}}{a_1} = \frac{10}{1-10} = q^9$$

$$\frac{10}{1-10} = \frac{n}{1-n} \Rightarrow n = 10$$

$$1-n^9 \rightarrow 1-n^9 = 1 \Rightarrow n^9 = 1 \Rightarrow n = 1$$

$$a_1 + a_1 r = 12$$

$$a_1 r + a_1 r^2 = 12$$

$$\frac{a_1(1+r^2)}{a_1 r(1+r)} = \frac{12}{12} = 1$$

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

$$r^2(1-r+r^2) = 12r \rightarrow r^2 r^2 - 12r + r^2 = 0$$

$$\frac{1 \pm \sqrt{1-12}}{2} \rightarrow \frac{1 \pm \sqrt{-11}}{2}$$

$$r = 3 \rightarrow 1, 3, 9, 27$$

$$a_1 + a_1 r + a_1 r^2 = 12 \rightarrow \frac{r}{q} + r + r^2 = 12$$

$$r^2 - 12r + 12 = 0 \rightarrow r = 3, 2$$

$$a_1 + a_1 r + a_1 r^2 = 12 \rightarrow a_1 r^2 = 12 \rightarrow (a_1 r)^2 = 12 \Rightarrow a_1 r = \sqrt{12}$$

$$1, r, r^2, \dots$$

$$r, r^2, 1, \dots$$

$$S_1 = a_1 \left(\frac{q^1 - 1}{q - 1} \right) \rightarrow \frac{r^1 - 1}{r - 1} \rightarrow r^1 - 1 = 29.91$$

$$a_n = r(r)^{n-1} \rightarrow a_{10} = r \times r^9$$

$$(a_1, a_2, \dots)^{\frac{1}{p}} \Rightarrow (r \times r \times r)^{\frac{1}{p}} \rightarrow (r^3 \times r^3)^{\frac{1}{p}} = r^{\frac{6}{p}}$$

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$$a_1, a_1q, a_1q^2, a_1q^3, \dots$$

$$a_1q - a_1, a_1q^2 - a_1q, a_1q^3 - a_1q^2, \dots$$

$$a_1(q-1), a_1q(q-1), a_1q^2(q-1), \dots$$

q جي گھٽتائي

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

$$na_1 + \frac{n(n-1)d}{2} = \frac{n}{2}(2a_1 + (n-1)d)$$

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$$S_n = a_1 + a_1q + a_1q^2 + \dots + a_1q^{n-1} \rightarrow qS_n = a_1q + a_1q^2 + \dots + a_1q^n$$

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$$(q-1)S_n = aq^n - a \rightarrow a(q^n - 1) \rightarrow q \neq 1 \text{ جي } S_n = \frac{a(q^n - 1)}{q-1} \Rightarrow q=1 \text{ جي } S_n = \frac{a + a + \dots + a}{n} = na$$

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