

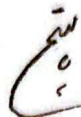
$$\alpha_1 = \epsilon_0 \rightarrow d = \frac{c_1 - \epsilon_0}{\epsilon - 1} \cdot \frac{r_1}{r} = V \rightarrow \underline{a_n = Vn + 22}$$

$$\alpha_\epsilon = 91$$

$$Vn + 22 = 201$$

$$Vn = 179$$

$$\boxed{n = 22}$$



$$99 < Vn + 22 < 1000$$

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$$Vn + 22 < 1000$$

$$99 < Vn$$

$$Vn < 978$$

$$1 \leq 1 \dots < n$$

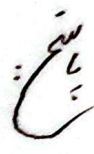
$$n < 1221 \dots$$

$$1 \leq n$$

$$n < 122$$

$$12 \leq n < 122$$

$$122 - 12 + 1 = \boxed{111}$$



$$\left. \begin{aligned} \text{if } n=1 &\rightarrow \alpha_r + \alpha_\epsilon + \alpha_\epsilon = -4 + 12 = 8 \rightarrow \frac{8}{2} = 4 = \alpha_\epsilon \\ \text{if } n=2 &\rightarrow \alpha_r + \alpha_\epsilon + \alpha_\epsilon = -6 + 12 = 6 \rightarrow \frac{6}{2} = 3 = \alpha_\epsilon \end{aligned} \right\} d = \frac{0-r}{1} = -r$$

$$a_n = r(-r) + b = r \rightarrow b = 1$$

$$\underline{a_n = -r^2 + 1} \rightarrow \alpha_{11} + \alpha_1 = (-2(11) + 1) + (-2(1) + 1) = -22$$

$$r^n - r^{n-1} = r^{n-1}(r - 1) \rightarrow \sum_{k=1}^n (r^k - r^{k-1}) = r^n - r^0 = r^n - 1$$

$$\sum_{k=1}^n r^k = r \frac{r^n - 1}{r - 1} = \frac{r^{n+1} - r}{r - 1}$$

$$\boxed{22}$$

$$a + 11d - a - 2d = 9d = 22 \rightarrow d = \frac{22}{9}$$

$$a + 11d + a + 2d = 2a + 13d = 22 \rightarrow 2a + 13 \cdot \frac{22}{9} = 22 \rightarrow 2a = 22 - \frac{286}{9} = \frac{198 - 286}{9} = \frac{-88}{9} \rightarrow a = -\frac{44}{9}$$

$$a_{11} = a_1 + 10d = -\frac{44}{9} + 10 \cdot \frac{22}{9} = \frac{-44 + 220}{9} = \frac{176}{9}$$

$$\underline{a_1 = -\frac{44}{9}}$$

$$\frac{a_1 + a_2 + a_3 + a_4 + a_5}{a_1 + a_2 + a_3 + a_4 + a_5} = \frac{1}{5} \rightarrow \frac{\Delta a + 10a}{\Delta a + 10a} \rightarrow \Delta a + 10a = 10a + 10a$$

$$\frac{a_1}{a_1} = \frac{a+d}{a} = \frac{ca}{a} = \boxed{\mu}$$

$\Delta a = 10a$
 $\Delta a = 10a$

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$$t_n = t_{n-1} + 1 \rightarrow \Delta t = 1 \rightarrow \Delta t = 1$$

$$\frac{t_9 - t_8}{t_9} = \frac{(t_9 + t_8)(t_9 - t_8)}{t_9} = \frac{r(t_9 - t_8)}{t_9} = 10 \times 10 = \boxed{100}$$

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$$d = \frac{r + \sqrt{r} - (r - 12\sqrt{r})}{12} = \frac{r + \sqrt{r} - r + 12\sqrt{r}}{12} = \frac{13\sqrt{r}}{12} = \boxed{\sqrt{r}}$$

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$$d = \frac{cr - r}{en - r} = \frac{c_0}{r(n-1)} = \frac{1d}{r(n-1)} \rightarrow \int_{n-1}^n \frac{1}{r} = r + n \left(\frac{1}{r(n-1)} \right) = 11$$

$$\frac{1}{r(n-1)} = 9 - \frac{1}{r(n-1)} = r$$

$$\rightarrow \frac{1}{r(n-1)} = 9 - \frac{1}{r(n-1)} = r$$

$$\boxed{n = 10}$$

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$$a_n + a_{n+1} = a_n + a_{n+1} \rightarrow n + 1 = n + 1 \rightarrow n = 1$$

$$\frac{a_1}{a_1} = \frac{r}{1} \rightarrow ca + 2d = a + 10d$$

$$ca = -10d$$

$$a = -d \rightarrow \boxed{a+d=0}$$

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