

$$a = r_0$$

$$a + r_0 d = 91 \rightarrow r_0 d = 41 \rightarrow d = 41$$

$$a_n = r_0 + (n-1)d = 201$$

$$(n-1)d = 191$$

$$n = \frac{191}{41} + 1 = 5$$

(1)

$$100 \leq V_n + r \leq 999 \rightarrow 9V \leq V_n \leq 99V \rightarrow 13/100 \leq n \leq 142/100 \rightarrow 14 \leq n \leq 142$$

$$142 - 13 = 129$$

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(2)

$$ra + r_0 nd + r_0 d = -9n + 12 \xrightarrow{+r} a + nd + d = -9n + 14$$

$$nd = -9n \rightarrow d = -9$$

$$a + a_{12} = 2a + r_0 d = 12 - 9 = 3$$

(3)

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

$$x = 2$$

$$a_r + a_1 + a_{12} = r + 1 + 12 = 14$$

(4)

$$\begin{cases} a_{12} - a_0 = 5 \\ a_{12} + a_0 = 20 \end{cases} \rightarrow \begin{cases} r_0 d = 5 \rightarrow d = r_0 \\ r(a_{12}) = r_0 \\ a_{12} = 20 \end{cases}$$

$$a_{12} = a_0 + 12d = 10 + 12 \times 5 = 70$$

(5)

$$5a + 10d = \frac{1}{r}(5a + r_0 d) \Rightarrow 5a + r_0 d = 5a + r_0 d \rightarrow 10a = 5d \rightarrow 2a = d$$

$$\frac{a_r}{a} = \frac{a+d}{a} = \frac{r_0 a}{a} = r$$

(6)

$$t_n = t_{n-1} + 1a \rightarrow a_n - a_{n-1} = 1a = r_0 d \rightarrow d = a$$

$$\frac{t_4 - t_0}{t_4} = \frac{(t_4 - t_0)(t_4 + t_0)}{t_4} = r \frac{(t_4 - t_0)}{t_4} \Rightarrow 1d = t_0$$

(7)

$$\frac{r + \sqrt{r} - r + 12\sqrt{r}}{12} = \sqrt{r} \Rightarrow d = \frac{b-a}{n+1}$$

(8)

$$\frac{r_0 r - r}{r_0 - r} = d \rightarrow 1a = r_0 nd - d \Rightarrow 1a = 11a - d \rightarrow d = 10a$$

$$11 = a_{n+1} = \frac{a}{r} + nd \rightarrow nd = 9$$

$$r_0 r - r = r_0 \times r \rightarrow r = 10 \rightarrow r = 10$$

(9)

$$a_r + a_{12} = a_n + a_{n+r} \rightarrow r + 12 = n + n + r \Rightarrow n = 12$$

$$a_r = r_0 a \rightarrow a + r_0 d = r_0 a + 9d \rightarrow a = -d$$

$$a_{k+1} = a_k + (k-1)d \rightarrow k-1 = 1 \rightarrow k = 2$$

مجموعه دوم برابر است.

(10)