

$$\left. \begin{array}{l} a_1 = 4 \\ a_1 + r d = 91 \end{array} \right\} \Rightarrow d = \frac{91 - 4}{r} = 7$$

$$t_n = V_n + r r \Rightarrow 7 \cdot n = V_n + r r \Rightarrow V_n = 170 \Rightarrow n = 28$$

۱

$$a_n = V_n + r, 91 < V_n + r < 1000 \Rightarrow 94 < V_n < 997 \Rightarrow 94 < V_n < 997 \Rightarrow n: 14, 15, \dots, 142$$

$$\Rightarrow \boxed{129 \text{ عدد}}$$

۲

$$r a_n + d = -4n + 12 \Rightarrow \left\{ \begin{array}{l} a = -4 \\ d = 7 \end{array} \right\} \Rightarrow t_n = -4n + 7$$

$$t_n = a_n + d \Rightarrow a_{n+1} + a_{n+2} + a_{n+3} = r a_n + r d$$

$$\left. \begin{array}{l} a_{14} = -52 \\ a_{14} = -12 \end{array} \right\} \Rightarrow a_{14} + a_{14} = -64$$

۳

$$\left. \begin{array}{l} t_r = a + r d = 7^r - 1 \\ t_n = a_1 + r d = 7^{n+1} \\ t_{1r} = a + r d = 7^{n+1} \end{array} \right\} \Rightarrow t_r + t_{1r} = \frac{t_n - t_1}{r t_n = (7^{n+1})^2 = 7^{2n+2}}$$

$$7^{n+1} + 7^n - 7^{n+1} = 7^{n+1} \Rightarrow 7^n + 7^n - 7^{n+1} = 7$$

$$7^n (2 - 7) = 7 \Rightarrow 7^n = 7 \Rightarrow n = 1$$

۴

$$a_{12} - a_1 = 7d = 8 \Rightarrow d = 1, 6$$

$$a_{12} + a_1 = 7a + 7d = 70 \Rightarrow 7a = -70 \Rightarrow a = -10$$

$$a_{12} = a + r d = -10 + 12 \cdot 1, 6 = 19, 2$$

۵

$$\frac{1 \cdot a = 0d \Rightarrow d = ra}{\downarrow} \Rightarrow \frac{ar}{a_1} = \frac{a+ra}{a} = \textcircled{r}$$

$$r(0a+1d) \neq (0a+r d)$$

$$\Rightarrow (0a+r \cdot d = 0a+r d) \Rightarrow \boxed{1 \cdot a = 0d}$$

$$a+rd = a+1d \Rightarrow rd = 1d \Rightarrow d = 0$$

$$(t_0)^r = t_0^r = (a+nd)^r - (a+ed)^r = a^r + rrd + 1rad = a^r - 1rd^r - 1ad$$

$$\Rightarrow rad + 1ad = 1a(rd+d) \Rightarrow \frac{rad+1ad}{a+rd} = \frac{r \cdot (r+a)}{r+a} = r$$

$$e_{r,d} = \frac{r+\sqrt{r} - r+1\sqrt{r}}{1r} = \sqrt{r}$$

$$d = \frac{b-a}{r_{n-r}} = \frac{r_0}{r_{n-r}}$$

$$t_{n+1} = t_1 + (n)d \Rightarrow nd = 9$$

$$nd = \frac{r \cdot n}{r_{n-r}} = 9$$

$$r_{n-r} = 1 \Rightarrow r_n = 1 \Rightarrow n = r$$

$$r, 1, r$$

$$t_1 + 9 + 11$$

$$a_n + a_{n+2} = a_r + a_{1r} \Rightarrow a + (n-1)d + a + (n+1)d = a + rda + 1da$$

$$\Rightarrow a + nd - d + a + nd + rd = a + rd + a + 1rd$$

$$ra + (r+1)d = ra + 1nd \Rightarrow (r+1)d = 1nd \Rightarrow r+1 = 1 \Rightarrow r = 1 \Rightarrow \boxed{n = 1}$$