

$$\left. \begin{array}{l} a_1 = 10 \\ a_r = 41 \end{array} \right\} d = \frac{a_r - a_1}{r - 1} = \frac{31}{19} = \boxed{V}$$

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$$10 + (n-1)V = 101 \rightarrow Vn = 91V \rightarrow n = 19$$

$$a_n = Vn + 10$$

$$\rightarrow 101 \leq Vn + 10 < 999 \Rightarrow$$

$$91V \leq Vn < 989 \rightarrow 19 \leq n < 108.2$$

$$n = 19, 10, 14, 17, \dots, 108$$

$$\boxed{19, 10, 14, 17, \dots, 108}$$

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$$a_{n+1} + a_{n+2} + a_{n+3} = 4n + 1$$

$$\hookrightarrow n=1 \rightarrow a_1 + a_2 + a_3 = 4, n=2 \rightarrow a_2 + a_3 + a_4 = 6$$

$$\hookrightarrow 2a_3 + 4d = 6 \rightarrow a_3 = 1 - 2d$$

$$a_1 + 4d = 4$$

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$$\hookrightarrow -4d + 4d = 4 \rightarrow d = -1 \rightarrow a = 4$$

$$a_n + a_{14} = 10 + 14d =$$

$$19 - 14 = -5 \Rightarrow \boxed{-5}$$

$$a_{19} - a_{17} = a_n - a_p \Rightarrow 19 = y \Rightarrow 19 - 17 = 2y - y + 1$$

$$y^2 - 17y - 1 = 0 \rightarrow (y-1)(y+1) = 0$$

$$y = 1, y = -1 \Rightarrow \text{غلط}$$

$$\hookrightarrow$$

$$19 = 1 \rightarrow n = 1$$

$$a_p + a_n + a_{19} = 17 + 1 + 19 = 37$$

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$$+ \left\{ \begin{array}{l} a_{19} - a_{17} = 2 \rightarrow d = \frac{a_{19} - a_{17}}{19 - 17} = \frac{2}{2} = 1 \\ a_{19} + a_{17} = 10 \end{array} \right.$$

$$10a_{19} = 10 \rightarrow a_{19} = 10 = a + 18d \rightarrow a = 10 - 18d = -8$$

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$$a_{19} = a + 18d = -8 + 18d = 10 \Rightarrow 18d = 18 \Rightarrow d = 1$$

$$S_0 = \frac{1}{1+r} S_1$$

$$\frac{a_1}{a_1} = \frac{a+d}{a} = \frac{1+a}{a} = 1 + \frac{1}{a}$$

$$S_1 = \frac{1}{1+r} (1+a+d) = a + 1 \cdot d \quad \text{✓}$$

$$S_{\text{period}} = \frac{1}{1+r} (1+a+d) + 1 \cdot d = a + 1 \cdot d \quad \text{✓}$$

$$t_n = t_{n-1} + 1 \Rightarrow \frac{t_n - t_1}{1} = d = \frac{10}{1} = 10$$

$$t_0 = t_1 - d$$

$$t_1 = t_0 + 1$$

$$t_1 - t_0 = (t_1 - t_0) (1 + r) = 1 \cdot (1 + r) = 1 + r$$

$$t_1 = t_0 + 1$$

$$\text{✓}$$

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

$$\frac{b-a}{n+1}$$

$$\text{✓}$$

$$d = \frac{b-a}{n+1} = \frac{1+r-1}{1+r} = \frac{r}{1+r} \rightarrow \frac{r}{1+r} = \frac{q}{n}$$

$$1 + dn = 1 \Rightarrow a = 1 \quad \text{✓}$$

$$dn = 9$$

$$d = \frac{9}{n}$$

$$\text{✓}$$

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

$$n + n + 1 = 1 \rightarrow n = 1$$

$$a_1 + a_2 = a_2 + a_1$$

$$a + 1 \cdot d = 1(a + 1 \cdot d)$$

$$-1a + 1d \rightarrow d = 1$$

$$a_n = a + (n-1)d = 9$$

$$-a - a(n-1) = 0$$

$$a(1 - n + 1) = 0$$

$$a(1 - n) = 0$$

$$a = 0 \rightarrow \text{X}$$

$$1 - n = 0 \rightarrow n = 1$$

$$\text{✓}$$