

$$a_{10} = 4 \times 10 + 1 = \boxed{41}$$

(←

$$\boxed{4n+1}$$

① (الف)

$$a_{10} = 4 \times 10 + 1 = 41 \rightarrow S_n = \frac{n}{2} (a_1 + a_n) = \frac{1}{2} (4 + 41) = \boxed{22.5}$$

$a_1 = 4$
 $a_{10} = 41$

② (الف)

$$a_{10} = 4 + a_9 + a_8 + a_7 + a_6 + a_5 + a_4 + a_3 + a_2 + a_1 = 8 \leftarrow \text{شماره آخر} = 4 \times 10 = 40$$

$$4a_{10} + 10d = (4 \times 10) + 1 = \boxed{41}$$

$$a_{10} = 4 \times 10 + 1 = 41$$

$$1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots \rightarrow \text{دنباله حسابی}$$

$$t_n = a_1 + (n-1)d$$

$$t_{10} - t_{11} = 2d \rightarrow 2(1 - \sqrt{3}) = 2 - 2\sqrt{3}$$

$$a_n = 2^n, 3 \times 2^n, 4 \rightarrow 2^n, 3 \times 2^n, 4 \rightarrow d = 3 \times 2^n - 2^n = 2^n \quad xy = 8$$

$$b_n = x, y, z$$

$$z = \frac{x + 2x + 1}{2} \rightarrow z = 3x + 1$$

$$3 \times 2^n + 2 \times 2^n = 4 \rightarrow x + 1 = y$$

$$xy = 1 \times 3 = 3$$

$$2n - 1 = \frac{2n + 1}{2} - 1$$

$$2n - 1 = 1n - 1$$

$$2 = 2n$$

$$\frac{1}{2} = n$$

$$2n - 1, 1n - 1, 2n, \dots$$

$$a_n = a_1 + (n-1)d$$

$$a_n = -1 + 2 = \boxed{1}$$

$$a_n = 2, 4, 6, \dots \rightarrow 2n$$

$$b_n = 2, 4, 6, \dots \rightarrow 2n$$

$$a_n = 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100$$

$$a_{10} = 2 \times 10 + 1 = \boxed{21}$$

$$b_{10} = 2 \times 10 - 1 = \boxed{19}$$

$$4n - 1 \leq 41$$

$$4n \leq 42$$

$$n \leq 10.5 \rightarrow \text{شماره آخر}$$

④

⑤

③

$$\begin{aligned}
 & \overset{a+d}{\uparrow} \overset{a_1+d}{\uparrow} \\
 & a_1 + a_r + a_r = 21 \\
 & 2a_1 + 2d = 21 \\
 & a + d = 10.5 \\
 & a_1 = 10.5 - 11 = -0.5 \\
 & a_r = -0.5 + 2d = 19
 \end{aligned}$$

$$\begin{aligned}
 a_1 + a_r + a_r &= 1.0 \\
 2a_1 + 2d &= 1.0 \\
 - (2a_1 + 2d &= 21) \\
 \hline
 2d &= 19 \\
 d &= 9.5 \\
 \frac{V}{a_1} &= \frac{V}{-0.5} = -\frac{1}{0.5}
 \end{aligned}$$

$$\begin{aligned}
 a_r - a_r + a_1 &= \\
 19 - 19 + (-0.5) &= -0.5
 \end{aligned}$$

$$\begin{aligned}
 a_r &= a_1 + 2d \\
 19 &= -0.5 + 2d \\
 2d &= 19.5 \\
 d &= 9.75
 \end{aligned}$$

$$\begin{aligned}
 a_f + a_d &= 20 \\
 a_1 + 2d + a_1 + 2d &= 20 \\
 2a_1 + 4d &= 20 \\
 2a_1 + 2d &= 10 \\
 - (2a_1 + 2d &= 21) \\
 \hline
 2d &= -11 \\
 d &= -5.5
 \end{aligned}$$

$$\begin{aligned}
 a_1 + a_r + a_r &= 10 \\
 2a_1 + 2d &= 10 \\
 a + d &= 5 \xrightarrow{\times 2} 2a + 2d = 10 \\
 a &= 5
 \end{aligned}$$

$$\begin{aligned}
 \frac{a_r}{a_v} &= 2 \\
 \frac{a_1 + 19d}{a_1 + 4d} &= \frac{a_1 + 19a}{a_1 + 11a} = \frac{19}{11} \\
 \frac{S_9}{S_r} &= 9 \rightarrow \frac{9}{1} = \frac{9}{1} \cdot \frac{(1a + 1d)}{(1a + 1d)} \\
 9a + 54d &= 11a + 11d \\
 43d &= 2a \rightarrow d = \frac{2a}{43}
 \end{aligned}$$

$$\begin{aligned}
 a_1 &= 11 \\
 a_v &= 20 \\
 b_1 &= 11 \\
 b_f &= 22 \\
 4d &= 2f \\
 d &= f \\
 2d &= -10 \\
 d &= -5
 \end{aligned}$$

$$\begin{aligned}
 a_n &= 11 + (n-1)f \\
 b_f &= a_f = 11 + (f-1)f = 2f
 \end{aligned}$$

$$d = \frac{b-a}{k+1} \rightarrow -5 = \frac{-10}{k+1}$$

$$\begin{aligned}
 -5(k+1) &= -10 \\
 -5k - 5 &= -10 \\
 -5k &= -5 \\
 k &= 1
 \end{aligned}$$

(V)

(1)

(9)

(10)