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$$\begin{array}{ccccccc} 1 & & 5 & & 12 & & 22 \\ & \swarrow & & \searrow & \swarrow & & \searrow \\ & +4 & & +7 & & +10 & \\ & \swarrow & & \searrow & \swarrow & & \searrow \\ & +2 & & +6 & & & \end{array}$$

$$\frac{r}{r} - \frac{1}{r} + C = 1 \Rightarrow C = 0$$

$$\frac{r}{r} n^r + (n)b + C = T_n \Rightarrow t_n = \frac{r}{r} n^r + \left(-\frac{1}{r}\right) n$$

$$\frac{r}{r} + b + C = 1$$

$$t_{10} = \frac{r}{r} \times 10 + \left(-\frac{1}{r}\right)$$

$$\frac{r}{r} \times 4 + 2b + C = 5$$

$$\frac{29}{r} = 145$$

$$\frac{9}{r} + b = 6 \Rightarrow b = -\frac{1}{r} \Rightarrow t_{10} = 145$$

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$$t_n = n^r$$

$$t_n = \frac{1}{r} n^r - \frac{1}{r} n$$

$$\begin{array}{ccccccc} 1 & & 2 & & 3 & & 4 \\ & \swarrow & & \searrow & \swarrow & & \searrow \\ & +1 & & +2 & & +3 & \\ & \swarrow & & \searrow & \swarrow & & \searrow \\ & +1 & & +1 & & +1 & \end{array}$$

$$\frac{1}{r} \times 1 + 1 \times \frac{1}{r} + C = 0 \Rightarrow C = 0$$

$$5 = \frac{1}{r} n^r - \frac{1}{r} n \Rightarrow 5 = \frac{1}{r} n(n-1) \Rightarrow 11 = n(n-1)$$

$$\Rightarrow 11 = 11 \times 10 \Rightarrow n = 11$$

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$$t_n = 5, 5+4, 5+(2 \times 4), \dots \Rightarrow t_n \Rightarrow f_{n+1}$$

$$t_n = 0, 0+4, 0+(2 \times 4), \dots \Rightarrow t_n = f_n - 4$$

$$f_n = f_{n+1} + f_n - 4 \Rightarrow 11n - 3$$

$$f_{11} = 11 \times 11 - 3 = 118$$

$$f_{11} = 66 + 1 = 67$$

$$130 \leq t_n$$

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$$\frac{1}{r} \Rightarrow \min \rightarrow \max \rightarrow n = 2$$

$$-\frac{1}{1}, -\frac{1}{2}, -\frac{1}{3}, -\frac{1}{4}, \dots$$

$$a_{\max} - a_{\min} = \frac{1}{r} - (-1) = \frac{2}{r}$$

$$-\frac{1}{r} \Rightarrow \min$$

$$n = 1 \rightarrow \max$$

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$$b_r = (-r)^r - (r \times r) = -61$$

$$a_n = -2n + 22 \Rightarrow a_k = -18 = -2k + 22 = 12 \Rightarrow k = 10$$

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$$a_{10} - av = 1 \quad r \Rightarrow rd = 1 \quad r \Rightarrow d = f$$

$$u_9 - a_1 = 2d \Rightarrow 2 \times f = r_0 \quad \checkmark$$

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$$d = \frac{12 - V}{f - r} = f \quad a_n = f(n-1) \quad a_1 = r = a_1 \quad ar = 1 = br$$

$$b_n = 11n - 2 \quad \checkmark \Rightarrow r, 11, 19, \dots$$

$$\text{So } d = \frac{11 - r}{r - 1} = 1$$

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$$t_n = \frac{r}{a}, \frac{q}{v}, \frac{10}{7}, \frac{1f}{11} \Rightarrow t_n = \frac{q_n - r}{r_n + r}$$

$$\text{So } t_n \Rightarrow f_n - r$$

$$\text{منج } t_n \Rightarrow r_n + r$$

$$\frac{f_n - r}{r_n + r} < \frac{r}{r} \Rightarrow q_n + q < 11n - f \Rightarrow 1r < r_n$$

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(1, 1, 5)

$$\left. \begin{array}{l} t_1 = A + B = 4 \\ t_2 = 8A + 2B = 9 \\ t_3 = 9A + 3B = 9 \end{array} \right\} \left. \begin{array}{l} rA + B = r \\ 2A + 2 = 0 \end{array} \right\} \left. \begin{array}{l} rA = -r \Rightarrow A = -\frac{r}{r} \\ B = V, 2 \end{array} \right\}$$

$$\frac{99}{9} = 11$$

$$rA + B + 2 = r \cdot 9 - \frac{r}{n} + 2 \cdot 9 \cdot \frac{12}{r} = -\frac{9}{r} + \frac{V2}{r} = \frac{9}{r} - rf$$

$$t_n = -9, -8, 0, 0, \dots$$

$$\left. \begin{array}{l} c + a + b = -9 \\ c + 8a + 2b = -8 \\ c + 9a + 3b = 0 \end{array} \right\} \left. \begin{array}{l} ra + b = r \\ 2a + b = 9 \end{array} \right\} \left. \begin{array}{l} ra = r \Rightarrow A = 1 \\ b = -1 \end{array} \right\}$$

$$d = \frac{f1 - r1}{f - r} = 2$$

$$B_n = 2n + 21$$

$$a + b + c = -9 \Rightarrow 1 + c = -9 \Rightarrow c = -9$$

$$2n + 21 = n^2 - n - 9$$

$$rV = n^2 - 9n \Rightarrow rV = \frac{9}{n}(n - 9) \Rightarrow rV = 9$$

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