

②

$$\frac{6}{5} + \frac{1}{5} = 1 + \frac{1}{5} = 1.2$$

②

$$x_0^{-1} + x_1^{-1} + x_2^{-1} + \dots + x_{r-1}^{-1} = (x_0^{-1} + (x_0 - 1)x_1) \frac{r}{x_0} = (x_0^2 x_1 + (x_0 - 1)x_1) \frac{r}{x_0} = x_0 + x_1$$

444

①

14

$$x^3 \partial^2 + x \partial^2 = \partial^2 (x^3 + x) = \partial^2 x^2 = \partial^2 x^{2+1} = \partial^2 \Rightarrow Y = Y_{2+1}$$

$$b_n = x, y, y = x, y, y_{n+1}$$

[illegible]

③

$$2x + y = 4x \Rightarrow 4x = y \Rightarrow x = \frac{y}{4} \Rightarrow a_1 = -\frac{y}{4}$$

$$a = a_1 + 2a_2 = 1 + 2 \times 2 = 5$$

$$\left. \begin{aligned} a_n &= 4, 7, 10, \dots \\ b_n &= 2, 5, 8, \dots \end{aligned} \right\} \begin{array}{l} \text{۱۷ و ۱۸ = جمله مشترک} \\ a_n, b_n \end{array}$$

$$a_n = 7n + 1, \quad b_n = 3n - 1 \quad \text{مشترک } a_n \text{ و } b_n = 4n - 1$$

چون جمله a_n به از جمله دوم کوچکتر از b_n پس جمله مشترک در جمله اول

$$a_{70} > 4n - 1 \quad \text{کوچکتر از } a_{70} \text{ یا مساوی آن}$$

$$7 \times 70 + 1 > 4n - 1$$

$$471 > 4n - 1 \Rightarrow 4n < 472 \Rightarrow n < 118 \quad \text{جمله مشترک}$$

$$a_1 + a_7 + a_{11} = 71 \Rightarrow 3a_1 + 3d = 71 \Rightarrow \underbrace{a_1 + d}_{a_7} = 71 \quad (-7)$$

$$a_1 + a_7 + a_{11} = 10d \Rightarrow 3a_1 + 4d = 10d \Rightarrow \underbrace{a_1 + 2d}_{a_9} = 6d \quad 10$$

$$a_n = a_1, \quad a_7, \dots = a_1, \quad 7, 3d, \dots \Rightarrow a_1 = -9$$

$\begin{array}{c} \nearrow +11 \\ \nearrow +11 \end{array}$

$$a_7 - a_1 + a_1 = 3d - 7 + (-9) = 17$$

$$a_1 + a_7 + a_{11} = 10d \Rightarrow 3a_1 + 3d = 10d \Rightarrow (a_1 + d = 0) \times 3 \quad (1)$$

$$a_7 + a_{11} = 2a_1 + 7d = 2d \rightarrow 2a_1 + 7d = 2d$$

$$5d = 10 \Rightarrow d = 2$$

$\Downarrow$
 $a_1 = 7$

$$a_{10} = a_1 + 9d = 7 + 9 \times 2 = 25$$

$$S_9 = 9S_{11} \Rightarrow \left(\frac{7a_1 + 11d}{2} \right) \times 9 = 9 \left(\frac{7a_1 + 11d}{2} \right) \times 11 \quad (9)$$

$$\Rightarrow (a_1 + 4d) \times 9 = (a_1 + d) \times 11 \Rightarrow 9a_1 + 36d = 11a_1 + 11d$$

$$\Rightarrow 11a_1 = 25d \Rightarrow 25a_1 = d$$

$$\frac{a_{70}}{a_7} = \frac{a_1 + 19d}{a_1 + 4d} = \frac{25a_1}{11a_1} = \frac{25}{11}$$

$$a_1 = 11, a_v = \omega$$

$$\textcircled{-1d}$$

$$t_n = \omega 1, \dots, 1\omega$$

$$a_k = \frac{a_1 + a_v}{\omega} = \frac{\omega + 11}{\omega} = \omega$$

$$a_k = t_k \Rightarrow \omega = t_k = t_1 + \omega d = \omega 1 + \omega d \Rightarrow \omega d = -1d \Rightarrow d = -1$$

$$\text{قادر واسطه} = \frac{1\omega - \omega 1}{-1} - 1 = k$$