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$$a_1 = 1 + \left(\frac{1 \times 1}{1} \right) = 1$$



$$1 + \left(\frac{1 \times 1}{1} \right) / 1 + \left(\frac{2 \times 1}{2} \right) / 1 + \left(\frac{3 \times 2}{3} \right) / 1 + \left(\frac{4 \times 3}{4} \right) \Rightarrow \text{جمله سی} = n + \left(\frac{n \times (n-1)}{2} \right) = a_n$$

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$$\frac{1 \times 1}{1} / \frac{2 \times 1}{2} / \frac{3 \times 2}{3} \Rightarrow a_n = \frac{n(n-1)}{2} \Rightarrow \frac{n(n-1)}{2} = 55 \Rightarrow 110 = n(n-1) \Rightarrow n = 11$$

$$5, 9, 13 \Rightarrow a_{n+1} = a_n + 4$$

$$5, 11, 17 \Rightarrow a_n = 11n - 6$$

$$a_{11} = (4 \times 11) + 1 = 45$$

$$a_{11} = (4 \times 11) - 3 = 41$$

$$a_n = \frac{(-1)^n}{n} \Rightarrow \left. \begin{array}{l} b = \frac{(-1)^1}{1} = -1 \\ c = \frac{(-1)^2}{2} = \frac{1}{2} \end{array} \right\} = \frac{1}{2} - (-1) = \frac{3}{2}$$

$$b_r = (-1)^r - (-1)^{r-1} = -1 / a_n = -a_n + 22 \Rightarrow -a_n + 22 = -1 \Rightarrow a_n = -21$$

$$\Rightarrow n = 12$$

$$a_4 - a_1 = 12 \Rightarrow a_1 + 3d - (a_1 + 0d) = 12 \Rightarrow 3d = 12 \Rightarrow d = 4$$

$$a_9 - a_1 = (a_1 + 8d) - a_1 = 8d = 8 \times 4 = 32$$

$$a_1 = 1 / a_1 = 1/5 \Rightarrow d = \frac{a_m - a_n}{m - n} = \frac{1/5 - 1/10}{5 - 10} = 1/10 \Rightarrow a_1 + d = 1/5 \Rightarrow$$

$$a_1 + 1/10 = 1/5 \Rightarrow a_1 = 1/10 / a_1 = a_1 + 1d = 1/10 + 1/10 = 1/5 \Rightarrow a_n = 1/n - 1/10$$

$$t_n = \frac{1}{5}, \frac{1}{10}, \frac{1}{15}, \frac{1}{20}, \dots \Rightarrow a_n = \frac{1/n - 1/10}{1/n + 1/10} \Rightarrow \frac{1/n - 1/10}{1/n + 1/10} < \frac{1}{10} \Rightarrow$$

$$1/n - 1/10 < 1/n + 1/10 \Rightarrow 1/n < 1/10 \Rightarrow n < 10 \Rightarrow$$

$$\left(\frac{1}{5}, \frac{1}{10}, \frac{1}{15}, \frac{1}{20}, \frac{1}{25}, \frac{1}{30} \right)$$

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

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

$$1a = -1 \Rightarrow a = -1/10$$

$$\left. \begin{aligned} 1a + b = 1 &\Rightarrow -1/10 + b = 1 \Rightarrow b = 11/10 \\ a + b + c = 1 &\Rightarrow -1/10 + 11/10 + c = 1 \Rightarrow c = 0 \end{aligned} \right\} -1/10n^2 + 11/10n + 0$$

$$t_n = -1, -1, -1, \dots$$

$$a_n = 0, 1, 0, 1 \Rightarrow d = \frac{a_m - a_n}{m - n} = \frac{1 - 0}{2 - 1} = 1$$

$$1a = 1 \Rightarrow a = 1$$

$$1a + b = 1 \Rightarrow 1 + b = 1 \Rightarrow b = 0$$

$$a + b + c = -1 \Rightarrow 1 + 0 + c = -1 \Rightarrow c = -2$$

$$\left. \begin{aligned} n^2 - n - 2 &= t_n \\ a_n + 1 &= n^2 - n - 2 \Rightarrow 1 = n^2 - n - 2 \end{aligned} \right\} n^2 - n - 2 = t_n$$

$$a_n + 1 = n^2 - n - 2 \Rightarrow 1 = n^2 - n - 2 \Rightarrow n^2 - n - 3 = 0 \Rightarrow n = 3$$