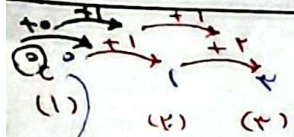


$$2a_1 = 3 \rightarrow a_1 = \frac{3}{2} \quad a_1 = \frac{3}{2} + b \rightarrow 1 = \frac{3}{2} + b \rightarrow b = -\frac{1}{2}$$

$$C = 0 \quad a_n = \frac{3}{2}n^2 - \frac{1}{2}n$$

$$a_{10} = \frac{3}{2}(10)^2 - \frac{1}{2}(10) \rightarrow a_{10} = 150 - 5 \rightarrow a_{10} = 145$$



$$2a = 1 \rightarrow a = \frac{1}{2} \quad C = 0$$

$$a_1 = \frac{1}{2} + b \rightarrow 0 = \frac{1}{2} + b \rightarrow b = -\frac{1}{2}$$

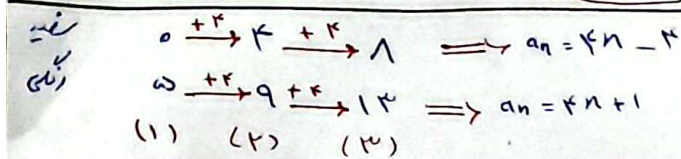
$$a_n = \frac{1}{2}n^2 - \frac{1}{2}n$$

$$\Delta \Delta = \frac{1}{2}n^2 - \frac{1}{2}n$$

$$\Delta \Delta = \frac{1}{2}(n^2 - n) \rightarrow \frac{\Delta \Delta}{\frac{1}{2}} = n^2 - n \rightarrow 110 = n^2 - n$$

$$110 = n(n-1) \rightarrow n = 11$$

نقطه یا دو هم



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

$$a_{11} = 4 \times 11 - 4 \rightarrow a_{11} = 40$$

$$45 + 40 = 85$$

$$a_n = \frac{(-1)^n}{n} \rightarrow a_1 = -1 \quad a_2 = \frac{1}{2} \quad a_3 = -\frac{1}{3} \quad a_4 = \frac{1}{4} \quad a_5 = -\frac{1}{5} \quad \dots$$

هر چه n بزرگتر شود عددی صفر کو میگذری شود (برای n های زوج) و هر چه n بزرگتر می شود اعداد بزرگتری شوند (برای n های فرد)

کوچکترین = -1 و بزرگترین = 1/5

$$\text{اختلاف} = \frac{1}{2} - (-1) = \frac{1+2}{2} = \frac{3}{2}$$

$$b_n = (-3)^n - 7n \rightarrow b_3 = (-3)^3 - 7 \times 3 \rightarrow b_3 = -27 - 21 \rightarrow b_3 = -48$$

$$a_n = -5n + 22 \rightarrow a_k - 5k + 22 \rightarrow -48 = -5k + 22 \rightarrow -5k = -70 \rightarrow 5k = 70$$

$$k = 14$$

$$t_{10} - t_5 = 12 \quad t_4 - t_1 = ?$$

$$a + 9d - a - 5d = 12 \rightarrow 4d = 12 \rightarrow d = 3$$

$$a + 2d - a = ? \xrightarrow{d=3} a + 6 - a = 20$$

$$t_r = 5 \quad t_r = 15 \quad \frac{t_1}{a_n} = \frac{t'_1}{b_n} \quad a_n = 3 + (n-1) \times 3 \rightarrow a_1 = 3 + (1-1) \times 3 \rightarrow a_1 = 3$$

$$a + d = 5 \quad a + 3d = 15 \rightarrow 2d = 10 \rightarrow d = 5$$

$$a_3 = 3 + 2 \times 3 \rightarrow a_3 = 9$$

$$t_1 = 3, t_r = 11 \rightarrow t'_1 = 3, t'_r = 11$$

$$3 = a + (n-1)d \rightarrow 3 = a + (1-1)d \rightarrow a = 3$$

$$11 = a + (n-1)d \rightarrow 11 = 3 + 1 \times d \rightarrow 11 = 3 + d \rightarrow d = 8$$

$$b_n = 3 + (n-1) \times 8$$

$$t_n = \frac{1}{4}, \frac{2}{9}, \frac{10}{9}, \frac{14}{11}, \dots \rightarrow a_n = \frac{4n-2}{2n+3}$$

$$\frac{4n-2}{2n+3} < \frac{3}{5}$$

$$4n-2 < 4n+9 \rightarrow 2n < 11 \rightarrow n < \frac{11}{2} = 5\frac{1}{2}$$

بین n های ۱ تا ۵
کدام می شود **۶ جمله** کوچکتر از $\frac{3}{5}$
جواب

$$t_n = An^2 + Bn \quad t_n = 4, 9, 9, 4, \dots \rightarrow t_1 = A(1)^2 + B(1) \rightarrow t_1 = A + B$$

$$A + B = 4$$

$$t_2 = A(2)^2 + B(2) \rightarrow t_2 = 4A + 2B \rightarrow 4A + 2B = 9$$

$$A + B = 4 \rightarrow A = 4 - B$$

$$4(4-B) + 2B = 9 \rightarrow 16 - 4B + 2B = 9$$

$$2B = 10 \rightarrow B = \frac{10}{2}$$

$$A = 4 - \frac{10}{2} \rightarrow A = \frac{-2}{2}$$

$$3A + 5B = ? \rightarrow 3\left(\frac{-2}{2}\right) + 5\left(\frac{10}{2}\right) = \frac{-6 + 50}{2} = \frac{44}{2} = 22 \quad \text{جواب}$$

$$t_n = -6, -4, -2, 0, \dots$$

$$t'_r = 31 \quad t'_x = 41$$

$$t_n = an^2 + bn + c \rightarrow 2a = 2 \rightarrow a = 1, c = -6 \quad -2 = 1 + b - 6 \rightarrow b = -1$$

$$t_n = n^2 - n - 6 \quad \text{خطی} \quad t_n = a + (n-1)d \rightarrow t_r = a + d \rightarrow 31 = a + d$$

$$t_x = a + 4d \rightarrow 41 = a + 4d$$

$$2d = 10 \rightarrow d = 5$$

$$t_n = 24 + (n-1)5$$

خطی

$$24 + 5n - 5 = n^2 - n - 6 \rightarrow 21 + 5n = n^2 - n - 6 \rightarrow 27 = n^2 - 2n - 5n$$

$$27 = n(n-1-5) \rightarrow 27 = n(n-6) \Rightarrow n = 9 \quad \text{جواب}$$

در جمله ی نهم مشترک هستند.