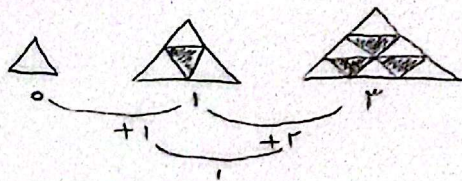


(م)

۱. $1, 5, 12, 22$
 $1, 4, 7, 10$

$2a = 3$
 $a = 1.5$
 $c = 0 \rightarrow$ از جمله اول

$an^2 + bn + c$
 $\frac{3}{4} + b = 1$
 $b = \frac{1}{4}$
 $a_n = 1.5n^2 - \frac{1}{4}n$
 $a_{10} = (1.5 \times 10^2) - (\frac{1}{4} \times 10) = 145$

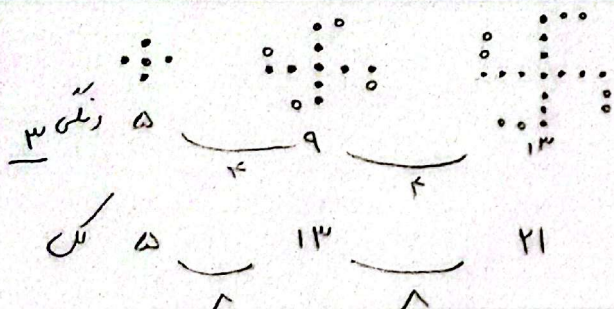


$2a = 1$
 $a = \frac{1}{2}$
 $b = -\frac{1}{2}$
 $c = 0$

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

(ج)

$a_n = \frac{1}{2}n^2 - \frac{1}{2}n \rightarrow \frac{1}{2}n^2 - \frac{1}{2}n = 55$
 $\frac{1}{2}n(n-1) = 110 \rightarrow n(n-1) = 220 \rightarrow n = 15$



$a_n = 5 + (n-1)4 \rightarrow 5 + 4n - 4 = 4n + 1 = a_n$

$a_{11} = 49$

$4 \times 5 + 1 = 21$

$a_{11} = 11 \times 4 = 44$

$a_n = 5 + (n-1)4 = 5 + 4n - 4 = 4n + 1 = a_n$

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

$a_r = \left(\frac{1}{r}\right)$

$a_r = \frac{-1}{r}$

$a_e = \frac{1}{r}$

$b_p = -27 - 21 = -48 = -5n + 22$

$-5n = -48 \rightarrow 5n = 48$

$n = 9.6$

$a_1 - a_5 = 12 \rightarrow 9 + 3d - 5d = 12 \rightarrow d = -3$

$a_5 - a_1 = 9 + 5d - 9 \rightarrow 5d = 12 \rightarrow d = 2.4$

(ج)

$$a_r = \sqrt{15} \quad a_1 + d = \sqrt{15} \rightarrow \boxed{a_1 = \sqrt{15}} \quad \left. \begin{array}{l} r + (n-1)d = a_n \\ b_n = an - a \end{array} \right\}$$

$$\sqrt{15} \quad a_r = 15 \rightarrow \sqrt{15} + rd = 15 \rightarrow rd = 14 \rightarrow \boxed{rd = 14}$$

$$a_1 = b_1 = \sqrt{15}, \quad a_r = 11 = b_r \rightarrow b_n = \sqrt{15}, 11, 19, 27$$

$$t_n = \frac{r}{a}, \frac{4}{\sqrt{15}}, \frac{1}{9}, \frac{14}{11}, \dots \quad \frac{r_{n-1}}{r_{n+1}} = a_n \quad \frac{11}{13} \quad \frac{22}{15}$$

$$\frac{1}{\sqrt{15}} \quad \frac{1}{13} \quad \frac{1}{15}$$

$$1, 5, 4$$

$$t_n = 4, 9, 9, 4, 0, \dots \quad ra = -15 \quad a = -\frac{15}{r} \quad -\frac{15}{r}n^2 + bn = a_n$$

$$t_n = An^2 + Bn \rightarrow \sqrt{15} \quad c = 0 \rightarrow \text{مربع کامل}$$

$$n=1 \rightarrow -\frac{15}{r} + b = 4$$

$$b = \frac{4 + \frac{15}{r}}{\sqrt{15}}$$

$$3A + 2B = 3\sqrt{15}$$

$$3x - \frac{15}{r} = -\frac{9}{r} + (a \times \sqrt{15}) = (15\sqrt{15})$$

$$a_n = -\frac{15}{r}n^2 + \sqrt{15}n$$

$$t_n = -4, -1, 0, \dots \quad ra = 1 \quad \boxed{a = 1} \quad c = -4 \rightarrow \text{مربع کامل}$$

$$a_r = 11 \quad a_f = 1 \quad a_1 + d = 11 \rightarrow \boxed{a_1 = 14}$$

$$\sqrt{15} + rd = 11 \rightarrow rd = 10 \quad \boxed{rd = 10}$$

$$a_n = 14 + (n-1)10 = 10n + 4$$

$$10n + 4 = a_n \rightarrow \boxed{a_9 = 94}$$

$$n^2 - n - 4 = an + r1 \quad n(n-1-4) = 15 \quad 9(3) = 27 \rightarrow n=9$$