

۲۵

$$1, f, 1, 9, 3, 14, 4 \sim n^2 + \frac{n(n-1)}{2} = \frac{3n^2}{2} - \frac{n}{2}$$

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

۲

۱

$$0, 3, 4 \sim \frac{n(n-1)}{2} = 55 \sim n(n-1) = 110 = 11 \times 10 \Rightarrow n = 11$$

۲

۲

$$5, 9, 3 \sim f_{n+1} \Rightarrow f(11) + 1 = 45$$

$$0, 4, 1 \sim f_n - f \Rightarrow f(11) - f = 4$$

$$5, 13, 11, \dots \sim \Delta n - 3 \Rightarrow \Delta(11) - 3 = 15$$

۲

۳

$$\frac{(-1)^n}{n} \sim a_n = (-1)^n, \text{ کویکرتی جمله } a_n = \frac{(-1)^n}{n} = \frac{1}{n} \Rightarrow \frac{1}{n} - (-1) = \frac{1}{n} + 1$$

۲

۴

$$b_n = (-3)^n - V(3) = 27 - 21 = 6 \sim -f_n = -2k + 22 \sim (-V_0 + 2k) \rightarrow k = 14$$

۲

۵

$$a_{10} - a_7 = a_7 + 3d - a_7 = 3d = 12 \rightarrow d = 4 \sim a_n - a_1 = a_1 + 5d - a_1 = 5d = 20 = 2(10) = 20$$

۲

۶

$$t_r = 7, t_k = 15 \sim t_r - t_r = t_r + 2d - t_r = 2d = 15 - 7 = 8 \Rightarrow d = 4 \rightarrow t_r = 7 = 4(r) + b \rightarrow b = (-1)$$

$$t_n = 4n - 1 \sim t_1 = 4(1) - 1 = 3, t_3 = 4(3) - 1 = 11 \sim 3, 11, \dots \quad b_n = \Delta n - 5$$

۲

۷

$$t_n = \frac{4n-1}{2n+3} \sim \frac{4n-1}{2n+3} < \frac{3}{2} \sim \Delta n - 1 < 4n + 1 \sim 2n < 13 \sim n < 6.5 \quad \text{اولی}$$

۲

۸

$$4, 9, 9, 4, 0$$

$$+3, +1, -3, -4$$

$$-3, -3, -3 \rightarrow A = \frac{3}{2}, c = 0 \rightarrow An^2 + Bn \rightarrow a_1 = \frac{3}{2} + B = 4 \Rightarrow B = \frac{5}{2}$$

۲

۹

$$a_n = \frac{3}{2}n^2 + \frac{5}{2}n \quad 3A + 5B = 3(\frac{3}{2}) + 5(\frac{5}{2}) = \frac{9}{2} + \frac{25}{2} = \frac{34}{2} = 17$$

$$a_r = 31, a_f = 41 \sim a_f - a_r = 10 \Rightarrow a_f - a_r = a_r + 2d - a_r = 2d = 41 - 31 = 10 \sim d = 5$$

$$a_n = 5(n) + b = 31 \sim b = 11 \sim a_n = 5n + 11$$

$$-4 = 4, -f, 0, \dots \quad a = 1, c = (-4)$$

$$0 + 2 + 4$$

$$t_1 = 1 + b - 4 = -4 \sim b = (-1) \sim t_n = n^2 - n - 4$$

$$n^2 - n - 4 = 5n + 11 \sim n^2 - 6n - 15 = 0 \sim (n-9)(n+3) = 0 \rightarrow n = 9 \vee n = -3 \quad \text{نقص}$$

۲

۱۰