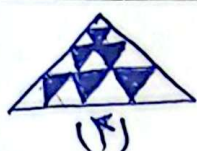


نام و نام خانوادگی: سید علی سعادت ۲۰ پاسخنامه تشریحی تکلیف شماره ۱۱ کلاس: دوم - B

• $\begin{matrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{matrix} \rightarrow n^2$ $\begin{matrix} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \end{matrix} \rightarrow n^2$ $\begin{matrix} \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \end{matrix} \rightarrow n^2$

$\Rightarrow 0, 1, 3, 6, \dots \Rightarrow n(n+1)/2 \Rightarrow 0, 1, 3, 6, \dots = n(n-1)/2$

$\Rightarrow n^2 + \frac{n(n-1)}{2} \Rightarrow a_{10} = (10)^2 + \frac{10(10-1)}{2} = 100 + 45 = 145$ ۲



$0, 1, 3, 6, \dots \Rightarrow 0, 1, 3, 6, \dots \Rightarrow a_n = \frac{n(n-1)}{2}$

$\Rightarrow \frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 110 \Rightarrow n = 11$ ۲
دریافته

برهه‌های رنگی: $\begin{cases} a_n = f(n+1) \Leftarrow 5, 9, 13, \dots \\ a_n = f(n-1) \Leftarrow 0, 4, 8, \dots \end{cases}$ $\leftarrow$ مجموع مربع‌ها

$a_{11} = 11 \times 11 - 3 = 115$ ۲ $a_{11} = 4 \times 11 + 1 = 45$ ۲

$a_1 = \frac{(-1)^1}{1} = -1$ کوچکترین $a_2 = \frac{(-1)^2}{2} = \frac{1}{2}$ بزرگترین $a_3 = -\frac{1}{3}$ $a_4 = \frac{1}{4}$ ۲

$a_2 - a_1 = \frac{1}{2} - (-1) = \frac{1}{2} + 1 = \frac{3}{2} = 1\frac{1}{2}$ ۲

$b_3 = (-3)^3 - 1 \times 3 = -27 - 3 = -30$

$a_k = b_3 \Rightarrow -5k + 22 = -30 \Rightarrow -5k = -50 \Rightarrow k = 10$ ۲

$$a_{10} - a_1 = 12 \Rightarrow a_1 + 9d - a_1 - 9d = 12 \Rightarrow 9d = 12 \Rightarrow d = \frac{4}{3}$$

$$a_9 - a_1 = ? \Rightarrow a_1 + 8d - a_1 = 8 \Rightarrow 8 \times \frac{4}{3} = \frac{32}{3}$$

2

$$a_7 = 15$$

$$a_7 = 15$$

$$a_1 = b_1 = 3$$

$$a_7 = b_7 = 11$$

$$b_n = ?$$

$$a_7 - a_1 = 15 - 3 \Rightarrow a_1 + 6d - a_1 - 6d = 12 \Rightarrow 6d = 12 \Rightarrow d = 2$$

$$2d = 12 \Rightarrow d = 6$$

$$a_7 = a_1 + d = 3 + 12 = 15 \Rightarrow a_1 + 12 = 15 \Rightarrow a_1 = 3$$

$$a_7 = a_1 + 6d = 3 + 12 = 15$$

2

$$b_n = 11n - d \quad b_1 = 3, b_7 = b_1 + 6d = 11 \Rightarrow d = 11 - 3 = 8$$

$$z_n = \frac{F_n - 1}{F_n + 1} \Rightarrow \frac{F_n - 1}{F_n + 1} < \frac{1}{2} \Rightarrow F_n - 1 < F_n + 1$$

$$\frac{F_n - 1}{F_n + 1} < \frac{1}{2} \Rightarrow F_n - 1 < F_n + 1$$

$$F_n - 1 < F_n + 1 \Rightarrow F_n < 2$$

$$11n - 8 < 2 \Rightarrow 11n < 10 \Rightarrow n < \frac{10}{11}$$

$$n < \frac{10}{11}$$

$$1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100$$

$$\therefore \frac{10}{11} \approx 0.909$$

$$z_1 = 1, z_2 = 1, z_3 = 1, z_4 = 1 \Rightarrow z_1 = A(1)^r + B(1)^{-r} \Rightarrow A + B = 1$$

$$z_2 = A(2)^r + B(2)^{-r} = 1 \Rightarrow 2A + B = 1$$

$$-2B = -1 \Rightarrow B = \frac{1}{2}$$

$$2A + B = 1 \Rightarrow 2A + \frac{1}{2} = 1 \Rightarrow 2A = \frac{1}{2} \Rightarrow A = \frac{1}{4}$$

$$A = \frac{1}{4}, B = \frac{1}{2}$$

$$\Rightarrow$$

$$z_n = an^r + bn + c \Rightarrow z_n = n^r + bn + c \Rightarrow z_1 = 1 + b + c = -1 \Rightarrow b + c = -2$$

$$a = \frac{d}{r} \Rightarrow d = 2 \Rightarrow a = 1$$

$$z_2 = 1 + 2b + c = -1 \Rightarrow 2b + c = -2$$

$$z_n = n^r - n - 1$$

$$a_7 = 11, a_7 = 11 \Rightarrow a_7 - a_1 = 11 - 3 = 8 = a_1 + 6d - a_1 - 6d \Rightarrow 6d = 8 \Rightarrow d = \frac{4}{3}$$

$$a_n = an^r + bn + c \Rightarrow an^r + bn + c = n^r - n - 1 \Rightarrow n^r - 4n - 5 = 0 \Rightarrow (n-5)(n+1) = 0$$

$$\Rightarrow n = 5 \text{ or } n = -1 \Rightarrow n = 5$$