

عدد آخر هر دسته: (سلسله آری) $9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99$
 عدد اول هر دسته: $1 + (سلسله قبلی)$

$$\frac{11 + 45}{2} = \frac{134}{2} = 67$$

دسته پنجم: $\{121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199\}$
 دسته چهارم: $\{40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$
 دسته سوم: $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$
 دسته دوم: $\{12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$
 دسته اول: $\{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$

ضابطه اول: $n = 2k \rightarrow \sigma_1 = 1, \sigma_2 = 2, \sigma_3 = 3, \sigma_4 = 4, \sigma_5 = 5, \sigma_6 = 6, \sigma_7 = 7, \sigma_8 = 8, \sigma_9 = 9, \sigma_{10} = 10, \sigma_{11} = 11, \sigma_{12} = 12, \sigma_{13} = 13, \sigma_{14} = 14, \sigma_{15} = 15, \sigma_{16} = 16, \sigma_{17} = 17, \sigma_{18} = 18, \sigma_{19} = 19$
 ضابطه دوم: $n = 2k + 1 \rightarrow \sigma_1 = 4, \sigma_2 = 2, \sigma_3 = 1, \sigma_4 = 3, \sigma_5 = 5, \sigma_6 = 6, \sigma_7 = 7, \sigma_8 = 8, \sigma_9 = 9, \sigma_{10} = 10, \sigma_{11} = 11, \sigma_{12} = 12, \sigma_{13} = 13, \sigma_{14} = 14, \sigma_{15} = 15, \sigma_{16} = 16, \sigma_{17} = 17, \sigma_{18} = 18, \sigma_{19} = 19$
 ضابطه سوم: $n = 2k + 2 \rightarrow \sigma_1 = 1, \sigma_2 = 2, \sigma_3 = 3, \sigma_4 = 4, \sigma_5 = 5, \sigma_6 = 6, \sigma_7 = 7, \sigma_8 = 8, \sigma_9 = 9, \sigma_{10} = 10, \sigma_{11} = 11, \sigma_{12} = 12, \sigma_{13} = 13, \sigma_{14} = 14, \sigma_{15} = 15, \sigma_{16} = 16, \sigma_{17} = 17, \sigma_{18} = 18, \sigma_{19} = 19$

$$\sigma_n = \left[\frac{n}{k+2} \right] - 2 \Rightarrow \left[\frac{2k+2}{k+2} \right] - 2 = \left[2 + \frac{k}{k+2} \right] - 2 = \left[\frac{k}{k+2} \right]$$

$$\sigma_n = \sigma_{n^2} + b n + c \Rightarrow \sigma_2 = 2^2 + b \cdot 2 + c = 14 \Rightarrow 4 + 2b + c = 14 \Rightarrow 2b + c = 10$$

$$\sigma_3 = 3^2 + b \cdot 3 + c = 14 \Rightarrow 9 + 3b + c = 14 \Rightarrow 3b + c = 5$$

$$\sigma_4 = 4^2 + b \cdot 4 + c = 14 \Rightarrow 16 + 4b + c = 14 \Rightarrow 4b + c = -2$$

$$\begin{aligned}
 a_r' &= \omega a_r a + r a_r a \Rightarrow 4(a+1d)' = \omega(a+r d)a + r(a+d)a \\
 &\Rightarrow 4a' + 4rd + 4d' = \omega a' + \omega rd + r a' + r d + r a' \\
 &\Rightarrow -ra' - \omega d + 4d' = 0 \Rightarrow a' - \omega d - rd' = 0 \Rightarrow (a-rd)(a+r d) = 0
 \end{aligned}$$

$a = \frac{rd}{-1-r} = -\frac{rd}{1+r}$
 $a = \frac{rd}{-1-r} = -\frac{rd}{1+r}$

$$\frac{a}{d} = \frac{-rd + rd}{1 + \frac{rd}{1+r}} = 1$$

(2)

$$b = \frac{a+c}{r}$$

$$\left(\frac{a}{r}\right)' = \frac{a'}{r} = \frac{b}{r} \Rightarrow a' = bc$$

$$a = b, \frac{a}{r}, \frac{c}{r} \Rightarrow a = b, \frac{c}{r} \Rightarrow \frac{c}{r}$$

$$q = -1 \Rightarrow r \times (-1) = -r$$

(2)

$$a' = \frac{a+c}{r} \times c \Rightarrow a' = \frac{ac+c^2}{r} = ra' - ac - c^2 = 0$$

$$(a+rc)(a+c) = 0$$

$$a = \frac{rc}{1+r} = c$$

(2)

$$ra = \frac{r(a+c)}{r} \Rightarrow ra = r b + c \Rightarrow a = \frac{rb+c}{r}$$

$$b' = ac \Rightarrow b' = \frac{r(a+c)}{r} \Rightarrow b' = rb + c \Rightarrow (b-r)(b+r) = 0$$

$$(b-r)(b+r) = 0 \Rightarrow b = r \text{ or } b = -r$$

$$q = \frac{c}{b} = -r \Rightarrow \frac{a}{a} = q \Rightarrow (-r)' = -4r$$

(2)

$$\frac{a}{a} = \frac{a}{a} + \frac{a}{a} = r \Rightarrow \frac{a}{a} + \frac{a}{a} = r \Rightarrow a' + aq = ra'$$

$$\Rightarrow ra' - aq - q' = 0 \Rightarrow a' - aq - q' = 0 \Rightarrow (a-q)(a+q) = 0$$

$$\frac{a}{a} = \frac{a}{a} \Rightarrow a = q = 1$$

$$a = \frac{1}{r} q = \frac{1}{r}$$

(2)

$$a = \sqrt{a} \Rightarrow a = \sqrt{a} \Rightarrow a = \sqrt{a} \Rightarrow a = \sqrt{a}$$

$$q = \frac{a}{a} = \frac{a}{a} = r$$

$$a = \frac{a}{a} \Rightarrow q = \frac{a}{a} \Rightarrow q = \frac{a}{a} \Rightarrow q = \frac{a}{a}$$

(2)