

عدد آخر در دسته: (شماره دسته) $\times$ عدد دسته: $9 \times 11 = 99$

عدد اول هر دسته: $1 + (\text{شماره دسته قبل})^2$

عدد اول دسته پنجم: $11^2 + 1 = 122$

عدد واسطه در دسته پنجم: $\frac{11 + 122}{2} = 66.5$

دسته پنجم: ۱۲۱ و ۳۹۳
دسته چهارم: ۴ و ۱۲۰
دسته سوم: ۱۳ و ۳۹
دسته دوم: ۴۵ و ۱۲
دسته اول: ۱ و ۳

میانگین اعداد دسته پنجم: $\frac{121 + 393}{2} = \frac{514}{2} = 257$

$n = 3k \rightarrow a_0 = 1, a_3 = 2, a_6 = 4, a_9 = 1$

$n = 3k+1 \rightarrow a_1 = 4, a_4 = 2, a_7 = 0$

$n = 3k+2 \rightarrow a_2 = \left[\frac{r}{r}\right] + a^{(-r)} = -1$

$a_5 = \left[\frac{5}{r}\right] + a^{(-r)} = -1$

$a_8 = \left[\frac{8}{r}\right] + a^{(-r)} = 0$

$a_n = an^r + bn + c$

$a_5 = (25a + 5b + c = 14)$

$a_8 = (64a + 8b + c = 17)$

$12a + b = 14$

$-21a + b = 14$

$b = 4$

$a_5 = 25a - \frac{2}{10} + \frac{4}{10} + c = 14 \rightarrow c = -1$

$a_8 = 64a - \frac{8}{10} + \frac{4}{10} - 1 = 17$

$a_3 = b_3 \rightarrow (a_1 + 3d = b_3)$

$a_8 = b_8 \rightarrow (a_1 + 8d = b_8)$

$5d = b_8 - b_3 \rightarrow b_n = a_n + b$

$b_8 - b_3 = 5n + 8 - 3n - 3 = 2n + 5$

$5n = 2d \rightarrow d = \frac{5}{2}n$

$b_{10} = 0 \rightarrow 10n + b = 0 \rightarrow b = -10n$

$d = \frac{b_{10}}{b_1} \rightarrow b_1 = \frac{b_{10}}{d} = \frac{10n + b}{\frac{5}{2}n} = \frac{2(10n + b)}{5n} = \frac{20n + 2b}{5n} = \frac{20n - 20n}{5n} = 0$

$$4a^r = \Delta a_r a + r a_r a \rightarrow 4(a+d)^r = \Delta(a+rd)a + r(a+d)a$$

$$\rightarrow 4a^r + 4rad + 4d^r = \Delta a^r + \Delta rad + r a^r + r ad$$

$$\rightarrow -ra^r - ad + 4d^r = 0 \xrightarrow{\text{div}} a^r - ad - 1rd^r = 0 \quad a = \frac{rd}{-r} = -d$$

$$\frac{a^r}{d} \left\{ \begin{array}{l} \frac{-rd+rd}{d} = 1 \\ \frac{1ad+rd}{d} = r, \Delta \end{array} \right. \quad (a-rd)(a+rd) \leq a = \frac{-rd}{-r} = 1, \Delta$$

$$b = \frac{a+c}{r} \rightarrow a^r = \frac{(a+c)^r}{r} \rightarrow a^r = \frac{ac+c^r}{r} \rightarrow ra^r - ac - c^r = 0$$

$$\left(\frac{a^r}{r}\right)^r = \frac{bc}{r} \rightarrow a^r = bc$$

$$a_n = b, \frac{a}{r}, \frac{c}{r} \rightarrow a_n = b, -\frac{c}{r}, \frac{c}{r}$$

$$q = -1 \rightarrow \text{ب. 1: } rx(-1) = (-r)$$

$$a^r - ac - rc^r = 0 \rightarrow (a-rc)(a+c) = 0$$

$$a = \frac{rc}{r} = c \quad a = -\frac{c}{r}$$

$$ra = \frac{rb+c}{r} \rightarrow ra = rb+c \rightarrow a = \frac{rb+c}{r}$$

$$b^r = ac \rightarrow b^r = \frac{rb+c}{r} \rightarrow rb^r - rb - c^r = 0$$

$$(rb-rc)(rb+\frac{c}{r}) = 0 \rightarrow \begin{cases} b=c \times \\ b = -\frac{1}{r}c \end{cases}$$

$$q = \frac{c}{b} = -r \rightarrow \frac{aq}{aq} = q^r = (-r)^r = (-r^r)$$

$$\frac{aq^r}{a^r q^r} + \frac{aq}{a^r} = r \rightarrow \frac{q^r}{a^r} + \frac{aq}{a^r} = r \rightarrow q^r + aq = ra^r$$

$$\rightarrow ra^r - aq - q^r = 0 \xrightarrow{\text{div}} a^r - aq - r q^r \rightarrow (a-rq)(a+q) = 0$$

$$\left\{ \begin{array}{l} a = rq \xrightarrow{\text{div}} a = q \\ a = -q \xrightarrow{\text{div}} q = -\frac{q}{r} \end{array} \right.$$

$$\frac{a^r}{aq} = \frac{q}{q} \rightarrow a = q \neq 1$$

$$a = -\frac{1}{r}q = \left(-\frac{1}{r}\right)$$

$$\left. \begin{array}{l} a_r = \sqrt{a_r} \\ a_\Delta = rV \end{array} \right\} \rightarrow a_\Delta \cdot a_r = a_r^r \rightarrow rV\sqrt{a_r} = \sqrt{a_r^r}$$

$$\rightarrow rV = \sqrt{a_r^r}$$

$$\sqrt{r^2 V^2} = \sqrt{a_r^r} \rightarrow a_r = q$$

$$q = \frac{a_r}{a_r} = \frac{q}{\sqrt{q}} = \sqrt{q} = (r)$$

$$a_r = a, a^r \rightarrow q = a, \times rV \rightarrow a_1 = \frac{1}{r} \rightarrow \frac{1}{r} - a_1 = \frac{1}{r} - \frac{1}{r} = 0$$