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السنة الثامنة

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$$1) \quad \{1\}, \{2, 3, 4\}, \dots \quad a_1 = \{ \dots, 45 \} \quad \frac{45+1}{2} = 23$$

$$a_2 = \{ \dots, 48 \}$$

$$2) \quad \{1, 2, 3\} \quad \{4, 5, \dots, 12\} \quad \{13, \dots, 39\} \quad \{40, \dots, 120\}$$

$$\{121, \dots, 343\} \quad \frac{121+343}{2} = 232$$

$$3) \quad a_n = \begin{cases} 2^k & ; n = 3k \\ -2k + 1 & ; n = 3k+1 \\ \left\lfloor \frac{n}{k+1} \right\rfloor + a & ; n = 3k+2 \end{cases}$$

$$a_1 = 1 \quad a_2 = 1+a \quad a_3 = 2 \quad a_4 = 2 \quad a_5 = 1+a$$

$$a_6 = 1 \quad a_7 = 1 \quad a_8 = 0 \quad a_9 = 2+a \quad a_{10} = 1$$

$$2a + 3a = 19 \rightarrow a = -2$$

$$10a + \{1 + 1 + \underbrace{2+2+\dots+2}_{10 \text{ times}}\} = 10(-2) + 10 \times 2 = -2$$

$$4) \quad a_d = 1 \text{ r} \quad a_v = 1 \text{ V, r} \quad a_n = -\frac{1}{\Delta} n^r + b n + c$$

$$-\frac{1}{\Delta} \times 1 \times 2 + 2b + c = 1 \text{ r}$$

$$-2, 1 + 1b = 0, \text{ r} \quad b = 1$$

$$-\frac{1}{\Delta} \times 1 \times 9 + 1b + c = 1 \text{ V, r}$$

$$-2 + 1 + c = 1 \text{ r} \quad c = 2$$

$$\text{0/10} \quad \frac{-\frac{1}{\Delta} \times 1 \times 10 + 1 \times 10 + 2}{-\frac{1}{\Delta} \times 1 \times 1 + 1 \times 1 + 2} = \frac{-10 + 10 + 2}{-1 + 1 + 2} = \frac{2}{2} = 1$$

$$5) \quad a_r = b \text{ r} \quad a_n = b \text{ V} \quad b_{10} = 0 \quad b_n = k n + t \quad 10k + t = 0$$

$$2k = 1 \text{ d} \quad k = \frac{1}{2} \text{ d} \quad t = -10k \quad b_{10} = 10 \times \frac{1}{2} \text{ d} - 10 \times \frac{1}{2} \text{ d}$$

$$b_{10} = 10 \text{ d} - 10 \text{ d} = 0 \quad \frac{b_{10}}{d} = 0$$

$$6) \quad 4a_r^r = 2a_r a + r a_r a \quad 1(a+r)^r = 2(a+r d) a + r(a+r d) a$$

$$4(a^r + r a d + d^r) = 2a^r + 10 a d + r a^r + r a d$$

$$r a^r + a d - 4 d^r = 0 \quad a = \frac{-d \pm \sqrt{29 d^r}}{r \times r} = \frac{\pm \sqrt{29} d^{\frac{r}{2}}}{r} \quad -r d \text{ um} \rightarrow \frac{a}{d} = 1$$

$$\frac{a}{d} = 1$$

= 0

7) $a+c=r b$ $\frac{bc}{a} = \frac{a^r}{r}$ $a^r = bc$ $a = -$

$\frac{c}{a} = q \left(\frac{a}{r} \right) \rightarrow c = r q a$ $b = q \left(\frac{c}{r} \right) \rightarrow b = \frac{q c}{r} = \frac{q (r q a)}{r}$

$b = \frac{q^r a}{r} = \frac{a+c}{r} = \frac{a+r q a}{r}$ $\frac{r q + 1}{r} = \frac{q^r}{r} \rightarrow q^r = r q + 1$

$q^r - r q - 1 = 0 \rightarrow q = 1 \pm \sqrt{r}$ $r q = r \pm r \sqrt{r}$ 0, 1, 2

8) $a c = b^r$ $r b + c = r a$ $\frac{a q^r}{a q^{r a}} = q^{r a} = -4 \leq 1$

$b = a q$ $c = a q^r$

$r a = r a q^r + a q^r$ $q^r + r q - r = 0$ $q = -r$ $q = 1$

9) $\frac{a_1}{(a_1)^r} + \frac{a_r}{(a_1)^r} = r$ $\frac{a q^r}{a^r q^{r r}} + \frac{a q}{a^r a^r} = r$ $\frac{a^r}{a q} = \frac{a}{q}?$

$\frac{q^r}{a^r} + \frac{q}{a} = r$ $\frac{q}{a} = t$ $t^r + t - r = 0$ $t > -r$ $t < 1$

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

10) $a q^r = \sqrt{a q^r}$ $a q^r = r v$ $a^r q^{r r} = a q^{r r}$ $a q = 1$

$\rightarrow q^r = r v \rightarrow q = r \rightarrow a = \frac{1}{r}$ $\frac{1}{r} - \frac{1}{r} = \left(\frac{1}{4} \right)$