

$$r(a_1 = 4, a_2 = 1)$$

$$r_0 + r_d = 41$$

$$r_d = 41 \rightarrow d = 41$$

$$a_n = 40 + (n-1)4$$

$$40 + (n-1)4 = 208$$

$$(n-1)4 = 168$$

$$n-1 = 42 \rightarrow n = 43$$

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$$v k + 2$$

$$1000 < v k + 2 < 1000$$

$$99 < v k < 999$$

$$12, 18 \leq k < 123, 4 \rightarrow 12 \leq k < 123$$

$$a_{n+1} + a_{n+r} + a_{n+r} = -4n + 12$$

$$a_{12} + a_{12} = 2$$

$$n+r=12$$

$$n=12$$

$$n+r=12$$

$$n=12$$

$$a_{12} + a_{12} = -24 - 1$$

$$= -25$$

$$-4n + 12 = \frac{r}{r} (a_{n+1} + a_{n+r})$$

$$-4n + 12 = \frac{r}{r} (2a_{n+r})$$

$$-4n + 12 = 2a_{n+r}$$

$$-2n + 6 = a_{n+r}$$

$$r^x - 1, r^{x+1}, r^x - r$$

$$a_n$$

$$a_{n+r}$$

$$\textcircled{1} r^x - 1 + 10d = r^{x+1} - r$$

$$r + 10d = r^{x+1} - r^x$$

$$r + 10d = r^x(r - 1) \rightarrow r + 10d = r^x(10d - r)$$

$$r + 10d = (10d - 1)(10d - 1)$$

$$r + 10d = 100d^2 - 20d + 1$$

$$0 = 100d^2 - 30d$$

$$0 = 10d(10d - 3)$$

$$\rightarrow d = 0 \text{ or } d = \frac{3}{10}$$

$$r^x + r^{x+1} + r^x = 4$$

$$r^x(1 + r + r^x) = 4$$

$$4(1 + r + r^x) = 4 \rightarrow 1 + r + r^x = 1 \rightarrow r + r^x = 0$$

$$\textcircled{2} r^x - 1 + 10d = r^{x+1}$$

$$10d - 1 = r^{x+1} - r^x$$

$$10d - 1 = r^x(r - 1)$$

$$10d - 1 = r^x \rightarrow r^x = 10d - 1 \rightarrow x = 0$$

$$a_{12} - a_{10} = 2$$

$$a_{12} + a_{10} = 20$$

$$a_{12} = \frac{20 + 0}{2} = 10$$

$$a_{10} = \frac{20 - 0}{2} = 10$$

$$a_{12} + 11d = 10$$

$$a_{10} + 9d = 10$$

$$10 - 11d = 10 - 9d$$

$$d = 0$$

$$10 = d$$

$$a_n = -12d + (n-1)12$$

$$a_{12} = -12d + 0 = -12d$$

$$a_{12} + 11d = 10$$

$$a_{10} + 9d = 10$$

$$a_{12} = -12d$$

$$r(a_1 + \dots + a_n) = (a_{n+1} + \dots + a_{2n})$$

$$\frac{dr}{a_1} = 2 \frac{a_1 + d}{a_1} = 1 + \frac{d}{a_1} = 1 + r = 3$$

$$\frac{dr}{a_1} = \frac{1}{r} \times \frac{d}{a_1} (a_1 + a_n)$$

$$r(a_1 + a_n) = a_1 + a_n$$

$$ra_1 + ra_n + 12d = a_1 + 10d + a_1 + 10d$$

$$ra_1 = 2d$$

$$r = \frac{2}{r} = \frac{d}{a_1}$$

$$t_n = t_{n-r} + 10$$

$$\xrightarrow{n-r} t_r = t_1 + 10$$

$$t_1 + r d = t_1 + 10$$

$$r d = 10 \rightarrow d = 2$$

$$\frac{(t_q - t_a)(t_q + t_a)}{t_v} = \frac{f_d \times (r t_1 + r d)^r}{t_1 + r d} = 10$$

$$= 1 \times 10 = 10$$

- 4

$$r + \sqrt{r} = r + 12\sqrt{r} = 12\sqrt{r}$$

$$\frac{+12\sqrt{r}}{12} = +\sqrt{r} = d$$

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$$r - 12\sqrt{r},$$

$$r + \sqrt{r}$$

$$r, \dots, r$$

$$r - r = 0$$

$$\frac{r}{r n - r} = \frac{10}{r n - 1} = d$$

- 9

$$\text{New } r : r + (n+1-1) \frac{10}{r n - 1} \rightarrow r + \frac{10n}{r n - 1} = 11$$

$$\frac{10n}{r n - 1} = 9 \rightarrow 10n - 9 = 10n$$

$$r n = 9 \rightarrow n = 3$$

$$a_n + a_{n+1} = a_r + a_{10}$$

$$\xrightarrow{\text{نوع اول}} r n + 10 = r$$

$$a_n = r a_{\frac{n}{r}}$$

$$a_n = r a_r$$

$$a_1 + 10d = r a_1 + 9d$$

$$-rd = ra_1$$

$$-d = a_1$$

$$d = -a_1$$

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$$a_1, a_r, a_n$$

$$\downarrow$$

$$a_1 + d \rightarrow a_1 - a_1 = 0$$