

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۱۳۰۰ کلاس
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$$a_1 = 40$$

$$a_n = 40 + (n-1) \times 7$$

$$a_{24} = 61$$

$$208 = 40 + (n-1) \times 7$$

$$d = \frac{a_{24} - a_1}{24} = \frac{61 - 40}{24} = 7$$

$$7(n-1) = 168$$

$$n-1 = 24$$

$$n = 25$$

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کوچکترین : ۱۰۱

بزرگترین : ۹۹۷

$$\frac{997-101}{7} + 1 = \frac{896}{7} + 1 = 128 + 1 = 129$$

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$$a_n = a_1 + (n-1)d$$

$$3a_1 + 3(n+3)d = -5n + 12$$

$$3d = -5 \rightarrow d = -\frac{5}{3}$$

$$3a_1 + 3d = 12 \rightarrow 3a_1 - 5 = 12 \rightarrow a_1 = 9$$

$$a_{14} = a_1 + 13d = 9 + 13(-\frac{5}{3}) = -\frac{26}{3}$$

$$a_{18} = a_1 + 17d = 9 + 17(-\frac{5}{3}) = -\frac{46}{3}$$

$$-\frac{26}{3} + (-\frac{46}{3}) = -\frac{72}{3} = -24$$

$$\begin{cases} a_{n+1} = a_1 + nd \\ a_{n+2} = a_1 + (n+1)d \\ a_{n+3} = a_1 + (n+2)d \end{cases}$$

$$a_{n+1} + a_{n+2} + a_{n+3} = 3a_1 + (3n+3)d$$

$$a_r = r^x - 1$$

$$a_{18} = r^{18} - 1$$

$$a_{12} = r^{12} - 1$$

$$a_{18} - a_{12} = a_{12} - a_6$$

$$(r^{18} - 1) - (r^{12} - 1) = (r^{12} - 1) - (r^6 - 1)$$

$$r^{18} - r^{12} - r^{12} + 1 = r^{12} - r^6 + 1 - 1$$

$$r^{18} - r^{12} - r^{12} + 1 = 0$$

$$(r^{12} - 1)(r^6 - 1) = 0 \rightarrow r^6 = 1$$

$$a_{18} = r^{18} - 1 = 17$$

$$a_{12} = r^{12} - 1 = 8$$

$$a_{18} - a_{12} = r^6 - 1 = 9$$

$$17 + 8 + 9 = 34$$

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$$a_n = a_1 + (n-1)d$$

$$a_{10} - a_{12} = 5 \rightarrow (a_1 + 9d) - (a_1 + 11d) = -2d = 5 \rightarrow d = -\frac{5}{2}$$

$$a_{10} + a_{12} = 24 \rightarrow (a_1 + 9d) + (a_1 + 11d) = 2a_1 + 20d = 24 \xrightarrow{d = -\frac{5}{2}} a_1 = \frac{37}{2}$$

$$a_{10} = a_1 + 9d$$

$$a_{12} = a_1 + 11d$$

$$a_{21} = a_1 + 20d = \frac{37}{2} + 20(-\frac{5}{2}) = -\frac{63}{2}$$

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$S_1^a = \frac{a}{r} (a_1 + a_n)$ $S_1^b = \frac{a}{r} (a_4 + a_{10})$ $S_1^a = \frac{1}{5} S_1^b$ $\downarrow$ $a_1 + a_n = \frac{1}{5} (a_4 + a_{10}) \rightarrow r a_1 + r d = \frac{1}{5} (r a_1 + 4 r d) \Rightarrow 5 a_1 + 5 r d = r a_1 + 4 r d \Rightarrow 4 a_1 = r d \rightarrow a_1 = \frac{r d}{4}$	6
$t_n = t_{n-r} + 1a$ $t_n = t_1 + (n-1)d$ $t_1 + (n-1)d = t_1 + (n-r)d + 1a$ $(n-1)d - (n-r)d = 1a$ $r d = 1a \rightarrow d = \frac{a}{r}$ $\Rightarrow t_n = t_1 + (n-1) \frac{a}{r}$ $\begin{cases} t_7 = t_1 + r_0 \\ t_v = t_1 + r_0 \\ t_n = t_1 + r_0 \end{cases}$ $t_v = t_1 + r_0 \rightarrow t_1 = t_v - r_0$ $t_7^r - t_1^r = r_0 (t_v - r_0) + 1 r_0 = r_0 t_v$ $t_7^r - t_1^r = (t_7 - t_1)(t_7 + t_1)$ $t_7 - t_1 = (t_1 + r_0) - (t_1 + r_0) = r_0$ $t_7 + t_1 = (t_1 + r_0) + (t_1 + r_0) = 2 t_1 + 2 r_0$ $t_7^r - t_1^r = (t_7 - t_1)(t_7 + t_1) = r_0 (2 t_1 + 2 r_0) = 2 r_0 (t_1 + r_0)$ $t_7^r - t_1^r = 2 r_0 t_1 + 2 r_0^2$	7
$a_1 = r(1 - 9\sqrt{r}) \quad a_{10} = r + \sqrt{r}$ $a_n = a_1 + (n-1)d$ $r + \sqrt{r} = r(1 - 9\sqrt{r}) + 10d$ $r + \sqrt{r} = r - 9r\sqrt{r} + 10d$ $10d = (r + \sqrt{r}) - (r - 9r\sqrt{r}) = \sqrt{r} + 9r\sqrt{r} = 10r\sqrt{r}$ $d = \frac{10r\sqrt{r}}{10} = r\sqrt{r}$	8
$r, a_1, a_r, a_n, q_r, r_r \rightarrow r, \lambda, 1d, r, r_2, r_r$ $a_1 = r + d$ $a_r = r + r d$ $a_n = r + r^2 d$ $a_r = r + r d$ $r_r = r + d \rightarrow d = r$ $d = \frac{b-a}{n+1}$ $11 = \frac{r+1}{r}$	9
$a_n + a_{n+r} = d r + a_{1r}$ $a_n = r a_{\frac{n}{r}}$	10