

پر تو پرورش	تکلیف شماره ۱۵	کلاس دهم A دفتر
	آلتر و دنا	تاریخ: ۱۸:۳۰ و ۱۶:۳۰
۱	$S_n = a_1 \left(\frac{q^n - 1}{q - 1} \right) = 21 \quad a_1 \times a_2 \times a_3 = 64 \rightarrow a_1^3 \times q^3 = 64 \rightarrow a_1 q = 4, a_1 = \frac{4}{q}$ $\frac{4}{q} \cdot \frac{(q^3 - 1)}{q - 1} = 21 \rightarrow q^2 + q + 1 = \frac{21}{4} q \quad q^2 - \frac{17}{4} q + 1 = 0$ $q = \frac{\frac{17}{4} \pm \sqrt{\frac{289}{16} - 4}}{2} \quad q = \left[\frac{17}{4} \pm \sqrt{\frac{289}{16} - 4} \right]$ مسابه انت $\rightarrow 17 \times 3$	
۲	$(n^2 - 2)(n^2 + 4) = 4n^2 \quad n^4 + 2n^2 - 8 - 4n^2 = 0$ $\xrightarrow{n^2 = 8} a^2 + 2a - 8 - 4a = 0 \Rightarrow a^2 - 2a - 8 = 0 \quad a = \frac{2 \pm 6}{2} \rightarrow \begin{cases} a = 4 \rightarrow n^2 = 4 \\ a = -2 \rightarrow n^2 = -2 \end{cases}$ $n = \pm 2 \rightarrow -2 \text{ و } 2 \xrightarrow{ki} q < 0$ $q = \frac{2n}{n^2 - 2} = 2 \rightarrow 8, 4, 2, \dots$ $S_n = \frac{n(n^2 - 1)}{2} = \frac{8 \times 7}{2} = 28$	
۳	$S_5 = a_1 + a_1 \cdot q + a_1 \cdot q^2 + a_1 \cdot q^3 + a_1 \cdot q^4 = a_1 (1 + q + q^2 + q^3 + q^4) =$ $\downarrow$ $\frac{17}{4}$ $\frac{243 \times 17}{4} = 262$	
۴	واسطه حسابی $\rightarrow d = \frac{b-a}{n+1} = \frac{64-1}{5} = \frac{63}{5} = \frac{12}{5}$ $A = t_5 = t_1 + 4d$ $1 + \frac{(4 \times 12)}{5} = \frac{60}{5} \rightarrow A = 12$ واسطه هندسی $\rightarrow q^{n+1} = \frac{b}{a} \quad q^5 = 64 \rightarrow q = 2$ $a_5 = a_1 q^4 = 1 \times 2^4 = 16$ $B = 16 \rightarrow A + B = 12 + 16 = 28$	
۵	$a_{101} = -24 + (100) \left(\frac{-95}{5} + 24 \right) = 1$ $a_n = \left(128 \times \frac{a_1}{128} \right)^n = 1 \quad \frac{a^5}{128} = 1 \quad a^5 = \sqrt[5]{128} = 2^5 \rightarrow a = 64$ $q = \frac{a}{128} = \frac{64}{128} = \frac{1}{2}$	

$t_r, t_v, t_q \xrightarrow{\text{مساوی}} t_r \times t_q = t_v^r \quad t_r = t_1 + r d \quad t_v = t_1 + s d \quad t_q = t_1 + n d \Rightarrow$ $(t_1 + r d)(t_1 + n d) = (t_1 + s d)^r \rightarrow t_1^r + r s d^r + r n d t_1 = t_1^r + r s d^r + r n d t_1$ $r d^r + r n d t_1 = 0 \quad r d(d + t_1) = 0 \quad \begin{cases} d = 0 \times \\ d = -t_1 \end{cases}$	✓
$t_r, t_f, t_n \xrightarrow{\text{مساوی}} t_r \times t_n = t_f^r$ $\underbrace{t_1 + d}_{t_r} \times \underbrace{t_1 + r d}_{t_n} = \underbrace{t_1 + v d}_{t_f^r} \rightarrow (t_1 + r d)^r = (t_1 + d)(t_1 + v d)$ $t_1^r + r d t_1 + r d^r = t_1^r + n d t_1 + v d^r \rightarrow r d^r = r d t_1 \xrightarrow{d \neq 0} d = t_1 \xrightarrow{\text{داده شود}} t_1, r t_1, r^2 t_1, \dots$ $\xrightarrow{\text{داده شود}} r t_1, r^2 t_1, n t_1 \Rightarrow q_v = r$ $a_1 = \frac{1}{r} \Rightarrow a_{1r} = a_1 \times q_v^r = \frac{1}{r} \times r^r = 1 r n$	✓
$\underbrace{r a_r}_{t_1}, \underbrace{r a_r}_{t_r}, \underbrace{a_f}_{t_f} \rightarrow r a_q, r a q^r, a q^r \Rightarrow r a q + a q^r = f a q^r$ $t_1, t_r \rightarrow t_1 + t_r - r t_r$ $f a q(r + q^r) = f a q^r \rightarrow r + q^r - f q = 0 \Rightarrow q = \frac{f \pm r}{r} \quad \begin{cases} \checkmark \\ 1 \rightarrow 3 \text{ و } 5 \end{cases}$	^
$r, \frac{r}{f}, 0, \dots \rightarrow t_1 = r \quad d = -\frac{1}{f}$ $t_f, t_n, t_{1r} \rightarrow \underbrace{r - \frac{r}{f}}_{\frac{r}{f}}, \underbrace{r - \frac{r}{f}}_{\frac{1}{f}}, \underbrace{r - \frac{1r}{f}}_{-1}$ $-1 + m, \frac{1}{f} + m, \frac{r}{f} + m \rightarrow \text{مساوی} \Rightarrow (-1 + m) \left(\frac{r}{f} + m \right) = \left(\frac{1}{f} + m \right)^2 \rightarrow$ $\frac{-r}{1f} + \frac{1}{f} m \Rightarrow m = \frac{-r}{f} \xrightarrow{\text{داده شود}} -\frac{r}{f}, \frac{r}{f}, -r \Rightarrow q = -\frac{r}{f} \div -\frac{r}{f} = \frac{f}{0}$	9
$\underbrace{a_1}_{t_1} + \underbrace{a_1}_{t_r} + \underbrace{a_v}_{t_v} = v r \quad t_1 + t_r + d + t_1 + r d = r t_1 + 1 \cdot d = v r \quad (1)$ $\frac{a_1}{a_f} = \frac{t_r}{t_1} = q^r \text{ و } \frac{a_v}{a_r} = \frac{t_1}{t_r} = q^r \rightarrow \frac{t_1}{t_r} = \frac{t_r}{t_1} \rightarrow t_r^r = t_1 \times t_1$ $(t_1 + d)^r = (t_1 + r d) t_1 \rightarrow t_1^r + d^r + r d t_1 = t_1^r + r d t_1 \rightarrow d^r - v d t_1 = 0$ $d(d - v t_1) = 0 \quad \begin{cases} d = 0 \times \text{ و } 3 \text{ و } 5 \\ d = v t_1 \end{cases} \quad (2)$ $1 \div r \Rightarrow r t_1 + 1 \cdot d = v r t_1 = v r \Rightarrow t_1 = 1 \text{ و } d = v$	10