

سوال یک

$105, 12, 12, \dots$
 $2a = 3 \Rightarrow a = \frac{3}{2}$
 $\begin{cases} \frac{3}{2}(1)^2 + b(1) + c = 1 \\ \frac{3}{2}(2)^2 + b(2) + c = 2 \end{cases} \Rightarrow \begin{cases} b + c = +\frac{1}{2} \\ 2b + c = -1 \end{cases}$
 $b = -\frac{1}{2}, c = 0$
 $\frac{3}{2}(10)^2 + (-\frac{1}{2})(10) + 0 = 145$
 تعدادوی در کل دهم: 145 ✓ 2

سوال ۲

$105, 12, 12, \dots$
 $2a = 1 \Rightarrow a = \frac{1}{2}$
 $\begin{cases} b + c = -\frac{1}{2} \\ 2b + c = -1 \end{cases} \Rightarrow \begin{cases} b = -\frac{1}{2} \\ c = +1 \end{cases}$
 $a_n^2 + bn + c \rightarrow \frac{1}{4}n^2 - \frac{1}{2}n + 1 = 0$
 $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = n$
 $\frac{\frac{1}{2} \pm \sqrt{\frac{1}{4} - 4 \cdot \frac{1}{4}}}{\frac{1}{2}} = 11$ ✓ 2

$105, 12, 12, \dots$
 $a_n = 8n - 3 \rightarrow a_{11} = 85$
 $b_n = n + 1 \rightarrow b_{11} = 12$

سوال ۳

1

سوال ۴

$-1, \frac{1}{2}, 9, -\frac{1}{16}, \frac{1}{3}, -\frac{1}{8}, \frac{1}{5}, \dots$
 بزرگترین عدد $\rightarrow$ اعداد منفی $\Rightarrow -1$
 کوچکترین عدد $\rightarrow$ اعداد مثبت $\Rightarrow \frac{1}{5}$
 $\Rightarrow +\frac{1}{5} - (-1) = 1,5$ ✓ 2

سوال ۵

2

$b_3 = -27 - 21 = -48$
 $-2k + 22 = -48 \Rightarrow -2k = -70 \Rightarrow k = 35$ ✓ 2

سوال ۶

2

$a_n + b$
 $(10a+b) - (7a+b) = 12 \Rightarrow 3a = 12 \Rightarrow a = 4$
 $(6a+b) - (1a+b) = ? \rightarrow 24 + b - 4 - b = 20$ ✓ 2

سوال ۷

2

$a_4 = 7, a_5 = 10 \Rightarrow 4n - 1$
 $\Rightarrow a_1 = 3, a_6 = 11$
 $\rightarrow b_1 = 3, b_2 = 11$
 $\Rightarrow 1n - 5$ ✓ 2

سوال ۸

2

$t_n = \frac{2}{3}, \frac{6}{5}, \frac{10}{7}, \frac{14}{9}, \dots \Rightarrow \frac{4n-2}{2n+3}$
 $\rightarrow \frac{2}{3} \leq \frac{4n-2}{2n+3} \Rightarrow n \geq \frac{13}{2}$

جواب = ۷ ✓

n های می توانیم که از $\frac{13}{2}$ کم تر باشند $\Rightarrow$
 $\frac{13}{2} = 6,5 \Rightarrow \frac{13}{2}$ از ۷
 کم تر هستند

$$t_n = \frac{4}{+w} \frac{9}{+0} \frac{9}{-w} \frac{9}{-w} \frac{9}{-w} \frac{0}{-9} - + - - -$$

$$\Rightarrow 2a = -3 \Rightarrow a = -\frac{3}{2}$$

سوال 9

$$\begin{cases} -\frac{3}{2} + B = 5 \\ -5 + 2B = 9 \end{cases} \Rightarrow \begin{cases} B = \frac{13}{2} \end{cases}$$

$$2A + 0B = -\frac{9}{2} + \frac{13}{2} = \frac{4}{2} = 2 \quad \checkmark$$

9

$$t_n = -\frac{5}{2} \frac{9}{+0} - \frac{f}{+0} \frac{9}{+0} \frac{0}{+0} - - -$$

$$2a = 2 \Rightarrow a = 1 \Rightarrow \begin{cases} 2 + b + c = +4 \\ 2 + b + c = -4 \end{cases} \Rightarrow b = -1, c = -5$$

سوال 10

$$a_1 = 3, a_2 = 1$$

$$\Rightarrow \begin{cases} -2a + b = 3 \\ +2a + b = 1 \end{cases} \Rightarrow a = 1, b = 2$$

$$n^2 - n - 5 = 2n + 1$$

$$n^2 - 3n = 6$$

$$n(n-3) = 6 \Rightarrow n = 9 \quad \checkmark \quad 9$$