

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ۱۵... کلاس: ...

الف) $t_n = 3^n - 1 \Rightarrow t_1 = 3(1)^1 - 1 = 2, t_2 = 3(2)^1 - 1 = 11, t_3 = 3(3)^1 - 1 = 26, t_4 = 3(4)^1 - 1 = 47, t_5 = 3(5)^1 - 1 = 74$

ب) $t_n = \frac{2n+1}{n+3} \Rightarrow t_1 = \frac{2(1)+1}{1+3} = \frac{3}{4}, t_2 = \frac{2(2)+1}{2+3} = \frac{5}{5} = 1, t_3 = \frac{2(3)+1}{3+3} = \frac{7}{6} = 1$
 $t_4 = \frac{2(4)+1}{4+3} = \frac{9}{7}, t_5 = \frac{2(5)+1}{5+3} = \frac{11}{8}$

۲

الف) $t_n = \frac{(-1)^n}{\sqrt{n+3}} \Rightarrow t_{13} = \frac{(-1)^{13}}{\sqrt{13+3}} = \frac{-1}{\sqrt{16}} = \frac{-1}{4} = -\frac{1}{4}$

ب) $t_n = 2n - \left\lfloor \frac{n}{4} \right\rfloor \Rightarrow t_{13} = 2(13) - \left\lfloor \frac{13}{4} \right\rfloor = 26 - 3 = 23$

۲

الف) $t_n = 2n - 10 \Rightarrow 2n = 10 \Rightarrow n = 5$

$t_1, t_2, t_3, t_4 \Rightarrow$ جمله نهمی ✓

ب) $t_n = n^2 - 14n + 40 \Rightarrow (n-10)(n-4)$

$t_5, t_6, t_7, t_8, t_9 \Rightarrow$ جمله نهمی ✓

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الف) $t_n = 2n - 14 \Rightarrow 2n = 14 \Rightarrow n = 7$

$t_1, t_2, t_3, t_4, t_5, t_6, t_7, t_8 \Rightarrow$ جمله نهمی ✓

ب) $t_n = n^2 - 12n + 27 \Rightarrow (n-3)(n-9)$

$t_3, t_4, t_5, t_6, t_7, t_8, t_9 \Rightarrow$ جمله نهمی ✓

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$t_n = an + b$

$t_4 = 7 \Rightarrow 4a + b = 7$ $t_3 = 1 \Rightarrow 3a + b = 1 \Rightarrow b = -2$

$t_9 = 22 \Rightarrow 9a + b = 22$

$5a = 15 \Rightarrow a = 3$ ✓

$t_n = 3n - 2 \Rightarrow 3(3) - 2 = 7 \Rightarrow$ جمله نهمی ✓

۲

$$\text{الف) } t_n = n^2 - 9n + 2 \quad -\frac{b}{2a} = \frac{9}{2} = 4.5 \Rightarrow \text{طول}$$

$$(3)^2 - 9(3) + 2 = -17 \Rightarrow \min$$

$$\text{ب) } t_n = n^2 + 2n + 1$$

$$-\frac{b}{2a} = \frac{-2}{2} = -1 \Rightarrow \text{طول}$$

ن از یک شروع می شود

$$(-1)^2 + 2(-1) + 1 = -1 \Rightarrow \min$$

$$n=1 \rightarrow \min \rightarrow t_1 = 4$$

$$t_n = -1, -3, -5, -7, -9, \dots$$

$$\Rightarrow 2a = 2 \Rightarrow a = 1$$

$$t_n = n^2 + bn + 1 \Rightarrow 1 + b + 1 = -1 \Rightarrow b = -4$$

$$n^2 - 4n + 1 \Rightarrow t_{10} = 100 - 40 + 1 = 61 \Rightarrow \text{چهارم}$$

$$t_n = -4, -1, 8, 21$$

$$\Rightarrow 2a = 4 \Rightarrow a = 2$$

$$2n^2 + bn - 1 \Rightarrow 2 + b - 1 = -4 \Rightarrow b = -1$$

$$t_n = 2n^2 - n - 1$$

$$(-\infty, a+4], [2a+1, +\infty)$$

$$a+4 \geq 2a+1 \Rightarrow 3 \geq a \Rightarrow (-\infty, 3]$$

$$2a+1 \geq a+4 \rightarrow a \geq 3$$

روابط:
۱) اشتراک نداشته باشد

۲) اشتراک یک عنصر داشته باشد

$$3, 4, 9, \dots, 99 \quad \frac{99-3}{3} + 1 = 33$$

$$5, 10, 15, \dots, 100 \quad \frac{100-5}{5} + 1 = 20$$

$$15, 30, 45, \dots, 90 \quad \frac{90-15}{15} + 1 = 6$$

$$n(A \cup B) = n(A) + n(B) - n(A \cap B) \Rightarrow 33 + 20 - 6 = 47$$