

نام و نام خانوادگی علی حبیبیان

پاسخنامه تشریحی تکلیف شماره ۱۲ کلاس پسر

۱۹, ۲۵

$$t_n = 5, 9, 13, 17, \dots$$

الف) $t_{n+c} \rightarrow t_1 = 5 \Rightarrow c = 1 \Rightarrow t_n = 4n + 1 \checkmark$

ب) $t_{10} = 10 \times 4 + 1 = 41 \checkmark$

(۲)

۱

$$t_n = 5, 9, 13, 17, \dots \quad S_n = \frac{n}{2} (t_1 + t_n) \rightsquigarrow t_n = 4n + 2$$

الف) $t_1 = 4 \times 1 + 2 = 6 \Rightarrow S_{10} = \frac{10}{2} (6 + 42) = 240 \checkmark$

ب) $4 \times 18 = 72 \rightarrow t_{18} = t_{\text{آخرین}} \Rightarrow t_{\text{اولی}} = t_{18-4+1} = t_{15}$

$\rightarrow \begin{matrix} t_{18} = 4 \times 18 + 2 = 74 \\ t_{15} = 4 \times 15 + 2 = 62 \end{matrix} \Rightarrow S_4 = \frac{4}{2} (62 + 74) = 4 \times 68 = 272 \checkmark$

(۲)

۲

$$t_n = 1 + \sqrt{3}, 2, 3 - \sqrt{3} \rightarrow 2 - (1 + \sqrt{3}) = 1 - \sqrt{3} = d \Rightarrow t_{28} - t_{27} = d = 1 - \sqrt{3} \checkmark$$

(۲)

۳

$$a_n = 5^{2x}, 3 \times 5^{2x}, 5^{2y} \rightsquigarrow (3 \times 5^{2x}) - 5^{2x} = 2 \times 5^{2x} = d \Rightarrow 5^{2y} = 5 \times 5^{2x} \Rightarrow y = 2x + 1 \checkmark$$

$$b_n = x, 2, y \rightarrow 2 - x = y - 2 \rightarrow y = 4 - x \quad \text{دقت!}$$

$\Rightarrow y = 2x + 1$
 $y = 4 - x \Rightarrow 2x + 1 = 4 - x \Rightarrow 3x = 3 \Rightarrow x = 1$
 $y = 4 - 1 = 3$
 $\Rightarrow y = 3$
 $\Rightarrow 2x + y = 2 \times 1 + 3 = 5$

(۱, ۵)

۴

$$t_n = 2x - 4, 2x - 1, 6x, \dots$$

$$\begin{matrix} 2x-4 & 2x-1 \\ +3 & +3 \end{matrix} \rightarrow 6x - (2x - 1) = 3 \rightarrow 4x = 3 \Rightarrow x = \frac{3}{4} \Rightarrow t_1 = -4$$

$\Rightarrow t_n = 3n - 4 \Rightarrow t_6 = 18 - 4 = 14 \checkmark$

(۲)

۵

$b_n = 2, 5, 8, \dots \text{ و } a_n = 3, 5, 7, \dots$ $b_n = 3n-1 \Rightarrow b_{r_1} = 4-1=3$ $a_n = 2n+1 \Rightarrow a_{r_2} = 5+1=6$ $c_1 = 2 \quad d = 3 \times 2 = 6$ $c_n = 2, 11, 17, \dots$ $c_n = 5n-1$ $c_n \leq 11$ $5n-1 \leq 11$ $5n \leq 12 \Rightarrow n \leq 2$ تعداد جمله مشترک = 2 ✓	2 6
$a_1 + a_r + a_s = 1.2$ $a_1 + a_r + a_s = 21$ $a_s - a_r = 14$ $r d = 14 \Rightarrow a_1 + a_r + a_s = 3a_1 + r d = 21 \Rightarrow 3a_1 = 21 - 14 = 7 \Rightarrow a_1 = \frac{7}{3}$ $d = 2$ $\Rightarrow a_r - a_s + a_1 = a_1 + d = -21 + 2 = -19 \Rightarrow \frac{7}{3} - 19 = -\frac{56}{3} \Rightarrow \frac{7}{3} = -\frac{56}{3} + 19 = \frac{11}{3}$	1, 19, 21 7
$a_1 + a_r + a_s = 3a_1 + r d = 10 \Rightarrow a_1 + d = 0$ $a_r + a_s = 2a_1 + 7d = 20 \Rightarrow a_1 + 7d = 10 \Rightarrow 8d = 10 \Rightarrow d = \frac{5}{4}$ $a_1 + d = 0 \Rightarrow a_1 = -\frac{5}{4} \Rightarrow a_{10} = a_1 + 9d = -\frac{5}{4} + 9 \times \frac{5}{4} = \frac{40}{4} = 10 \quad \checkmark$	21 10
$S_1 = 3 S_r \quad r(a_1 + a_r + a_s) = a_1 + a_r + \dots + a_1 \Rightarrow d = 0$ $\Rightarrow \frac{a_{r_1}}{a_v} = 1$	2 9
$a_v = 20 \quad a_1 = 11 \Rightarrow a_v - a_1 = 9d = 9 \Rightarrow d = 1 \Rightarrow a_n = 11 + (n-1) \times 1 = n$ $b_1 = 18 \rightarrow b_6 = 23 \Rightarrow b_6 - b_1 = 5d = 5 \Rightarrow d = 1 \Rightarrow b_n = 18 + (n-1) \times 1 = n+17$ $4-1=3 \Rightarrow \text{تعداد جمله مشترک} = 3-1=2 \quad \checkmark$ $n=4$ $n=6$	2 10