

نام و نام خانوادگی علیرضا اشرفی پاسخنامه تشریحی تکلیف شماره ۱۲... کلاس ... دهم B

الف) ۵، ۹، ۱۳، ۱۷، ...

$$\begin{array}{c} \curvearrowright \quad \curvearrowright \quad \curvearrowright \\ 4 \quad 4 \quad 4 \end{array} \Rightarrow d=4 \Rightarrow a_n = a_1 + (n-1)d = 5 + (n-1)4 = 5 + 4n - 4 = 4n + 1$$

ب) $a_{10} = 4(10) + 1 = 41$ ✓

$t_n = 4$ و $10, 14, 18, \dots \Rightarrow d = \frac{t_m - t_n}{m - n} = \frac{10 - 4}{2 - 1} = 6 \Rightarrow$ جمله عمومی $\boxed{4n + 2}$

الف) $S_n = \frac{n}{2}(a_1 + a_n) = \frac{10}{2}(4 + \underbrace{4(10) + 2}_{44}) = 240$ ✓

ب) چهار جمله اول = ۲۹، ۳۰، ۳۱، ۳۲ $\Rightarrow S_n = \frac{n}{2}(a_1 + a_n) = \frac{4}{2}(\frac{111 + 130}{2}) = 494$ ✓
 $\downarrow \quad \downarrow$
 $4(29) + 2 = 118 \quad 4(32) + 2 = 130$

۱+√۳ و ۲ و ۳-√۳ و ...

$$\begin{array}{c} \curvearrowright \quad \curvearrowright \\ 1-\sqrt{3} \quad 1-\sqrt{3} \end{array} = d$$

$a_{2d} - a_{2r} = a_1 + 2kd - a_1 - 2rd = 2d \Rightarrow 2(1-\sqrt{3}) = 2-2\sqrt{3}$ ✓
 $\underbrace{a_1 + 2kd} \quad \underbrace{a_1 + 2rd}$

$a_n = a^{rx} \quad , \quad 3 \times a^{rx} \quad , \quad a^y \Rightarrow a^y = a \times a^{rx} \Rightarrow a^y = a^{rx+1} \Rightarrow rx+1=y$

$bx = u, \quad 2, \quad y \Rightarrow \frac{u+y}{2} = 2 \Rightarrow u+y=4$

$$\left. \begin{array}{l} rx - y = -1 \\ u + y = 4 \end{array} \right\} \xrightarrow{+}$$

$\left. \begin{array}{l} rx = 3 \Rightarrow u = 1 \\ u + y = 4 \end{array} \right\} \Rightarrow \boxed{uy = 3}$ ✓

$$2x - 4, 2x - 1, 4x \xrightarrow[\text{مساواة}]{\text{مساواة}} \frac{2x + 4x - 4}{2} = 2x - 1 \Rightarrow 6x - 4 = 2x - 1 \Rightarrow 4x = 3 \Rightarrow x = \frac{3}{4}$$

$$-3, 0, 3, \dots \xrightarrow[\text{مساواة}]{\text{مساواة}} a_n = a_1 + (n-1)d = -3 + (n-1)3 = 3n - 4 \xrightarrow{n=7} a_7 = 3(7) - 4 = 17$$

$$\begin{aligned} a_n &= 3, 5, 7, \dots \xrightarrow[\text{مساواة}]{\text{مساواة}} a_n = 2n + 1 \xrightarrow{n=7} a_7 = 15 \\ b_n &= 2, 5, 8, \dots \xrightarrow[\text{مساواة}]{\text{مساواة}} b_n = 3n - 1 \xrightarrow{n=7} b_7 = 20 \end{aligned}$$

$$4n - 1 \leq 15 \Rightarrow 4n \leq 16 \Rightarrow n \leq 4$$

$$\begin{aligned} a_1 + a_2 + a_3 &= 15 \Rightarrow a_1 + a_3 = 15 - a_2 \Rightarrow a_2 + 2a_2 = 15 \Rightarrow a_2 = 5 \\ a_1 + a_2 + a_4 &= 10 \Rightarrow a_1 + a_4 = 10 - a_2 \Rightarrow a_2 + 2a_2 = 10 \Rightarrow a_2 = 5 \\ a_1 + a_2 + a_5 &= 11 \xrightarrow[a_2=5]{a_2=5} a_1 + 5 = 11 \Rightarrow a_1 = 6 \end{aligned}$$

$$\begin{aligned} a_1 + a_2 + a_3 &= 15 \Rightarrow a_2 + 2a_2 = 15 \Rightarrow a_2 = 5 \\ a_2 + a_3 &= 10 \Rightarrow 5 + a_3 = 10 \Rightarrow a_3 = 5 \\ a_1 + a_2 + a_4 &= 11 \Rightarrow a_1 + 5 + a_4 = 11 \Rightarrow a_1 + a_4 = 6 \end{aligned}$$

$$\begin{aligned} S_n &= \frac{n}{2} (a_1 + a_n) = \frac{n}{2} (a_1 + (n-1)d) \\ \frac{S_4}{S_7} &= \frac{\frac{4}{2} (a_1 + 4d)}{\frac{7}{2} (a_1 + 6d)} = 1 \Rightarrow 4a_1 + 16d = 7a_1 + 42d \Rightarrow 3a_1 = 26d \Rightarrow a_1 = \frac{26}{3}d \end{aligned}$$

$$a_1 = 11$$

$$a_v = 35 \Rightarrow a_v = a_1 + 4d = 35 \xRightarrow{a_1 = 11} 11 + 4d = 35 \Rightarrow \boxed{d = 6} \Rightarrow a_n = a_1 + (n-1)d$$

$$b_1 = 38$$

$$b_5 = 23 = b_1 + 4d \Rightarrow 38 + 4d = 23 \Rightarrow 4d = -15$$

$$\Rightarrow \boxed{d = -4}$$

$$\Rightarrow$$

$$b_n = -4n + 43 \Rightarrow -4n + 43 = 13 \Rightarrow -4n = -30$$

$$\Rightarrow \boxed{n = 4}$$

بین اوصله ✓