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

۲۰ عالی نوشتی!

۱ (۲)

$a_n = 4n+1$ ✓ (الف

$a_{10} = 4(10)+1 = 41$ ✓ (ب

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

۲ (۲)

$b_n = 9, 10, 12, 17, \dots \longrightarrow a_n = 4n+2 \longrightarrow d=4$

الف) $S_{10} = \frac{10}{2}\left((2\times 4)+(9\times 4)\right) = 260$ ✓

ب) $S = a_{29} + a_{30} + a_{31} + a_{32} = \frac{4}{2}\left(2a_{29} + 3\times 4\right) = 494$ ✓

$a_{29} = 4(29)+2 = 118$

۳ (۲)

$b_n = 1+\sqrt{2}, 2, 2-\sqrt{2}, \dots \longrightarrow d = 1-\sqrt{2}$

$a_{25} - a_{12} = 13d = 13(1-\sqrt{2}) = 13-13\sqrt{2}$ ✓

۴ (۲)

$a_n = 5^{3n}, 2\times 5^{3n}, 5^y \longrightarrow (2+1)\times 5^{3n} = 5^{3n+1} = 5^y \longrightarrow y = 3n+1$

$b_n = n, 2, y \longrightarrow x+y = 4 \longrightarrow y = 4-n$

$\longrightarrow \begin{cases} y = 3n+1 \\ y = 4-n \end{cases} \longrightarrow 3n+1 = 4-n \longrightarrow 3n = 3 \longrightarrow n = 1 \longrightarrow y = 4$ ✓

$\longrightarrow xy = 1\times 3 = 3$ ✓ جمع

۵ (۲)

$b_n = 3n-4, 2n-1, 4n, \dots \longrightarrow d = 2 = 4n+1 \longrightarrow n = 0.5$ ✓

$a_1 = 3n-4 = 1-4 = -3 \longrightarrow a_4 = a_1 + 3d = -3+9 = 6$ ✓ جمع

$a_n = 3, 5, 7, 9, 11, 13, \dots \rightarrow a_n = 2n+1 \rightarrow a_{20} = 41$ $b_n = 2, 5, 8, 11, 14, 17, \dots \rightarrow b_n = 3n-1 \rightarrow a_{20} = 59$ حل: $c_n = 6n-1 \rightarrow 6n-1 \leq 41,\ 6n \leq 42 \rightarrow n \leq 7$ $7-1+1 = 7$ جمله مشترک — پاسخ	(۲)	۶
$3a_1 + 3d = 21 \rightarrow a_1 + d = 7 = a_2 \rightarrow d = 28 \rightarrow a_1 = 7 - 28 = -21$ $3a_1 + 6d = 105 \rightarrow a_1 + 2d = 35 = a_3$ $\dfrac{a_3 - a_2 + a_1}{a_1} = \dfrac{35 - 7 + (-21)}{-21} = \dfrac{7}{-21} = -\dfrac{1}{3}$ پاسخ	(۲)	۷
$(a_2 - d) + a_2 + (a_2 + d) = 15 \rightarrow a_2 = 5$ $a_4 + a_6 = 26 \rightarrow (a_c - 2d) + (a_c - d) + a_c + (a_c + d) + (a_c + 2d) = 40$ $\rightarrow 5a_c = 40 \rightarrow a_c = 8 \rightarrow d = \dfrac{8-5}{1} = 3$ $\rightarrow a_n = 3n-1 \rightarrow a_{10} = 30 - 1 = 29$	(۲)	۸
$9(a_1 + 4d) = 9 \times 3(a_1 + d)$ $9a_1 + 36d = 27a_1 + 27d$ $9d = 18a_1 \rightarrow d = 2a_1$ $\dfrac{a_{20}}{a_7} = \dfrac{a_1 + 19d}{a_1 + 6d} = \dfrac{a_1 + 19 \times 2a_1}{a_1 + 6 \times 2a_1} = \dfrac{39a}{13a} = 3$ پاسخ	(۲)	۹
$a_n: a_1 = 11,\ a_7 = 35 \rightarrow d_1 = \dfrac{35-11}{7-1} = \dfrac{24}{6} = 4 \rightarrow a_n = 4n+7$ $4n+7 \rightarrow 4(4)+7 = 23 = b_1 + 3d_2$ $23 = 38 + 3d_2$ $-15 = 3d_2 \rightarrow -5 = d_2$ تعداد واسطه‌ها $= \dfrac{13-38}{-5} - 1 = 5 - 1 = 4$ واسطه این پرسش با این فرض حل شده که منظور از جمله چهارم، جمله چهارم دنباله است و نه چهارمین واسطه.	(۲)	۱۰

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