نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ...۱۲... کلاس .....

۱

ب)

$t_{10} = 4(10)+1 = \boxed{41}$

الف)

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

$+4 \quad +4 \quad +4$

$4n+1$

۲

ب)

$t_{20} + t_{21} + t_{22} = 3t_{21}$

$t_{21} = t_1 + 20d \rightarrow t_{21} = 6 + 20(4)$

$= \boxed{126}$

$3 \times 8 = 24$

الف)

$t_n = 6, 10, 14, 18, \ldots$

$+4 \quad +4 \quad +4$

$S_{10} = \frac{10}{2}(2(6) + (10-1)4) = \frac{10}{2}(12+36)$

$= \boxed{240}$

۳

$d = 2 - \sqrt{3}$

$a_{20} - a_{12} = a_1 + 19d - a_1 - 11d = 8d$

$8d = 8(2-\sqrt{3}) =$

$\boxed{16 - 8\sqrt{3}}$

$1+\sqrt{3}, 2, 3-\sqrt{3}, \ldots$

$+1-\sqrt{3} \quad +1-\sqrt{3}$

۴

$a_n = a^{2n}, \underbrace{3 \times 2a^n}_{2 \times a^{2n}}, a^y$

$a_2 - a_1 = a_3 - a_2$

$2 \times a^{2n} - a^{2n} = a^y - (2 \times a^{2n})$

$2 \times a^{2n} = a^y - (2 \times a^{2n})$

$a^y = a^{2n}(2+2) = a^{2n} \times a^2 = a^{2n+2} \rightarrow y = 2n+2$

$b_n = x, 2, y$

$2 - x = y - 2$

$y = 4 - x$

$2n + 2 = 4 - x$

$3x = 2$

$x = 1$

$y = 4 - 1 = 3$

$xy = 1 \times 3 = \boxed{3}$

۵

$2n-4, 2n-1, 4n$

$+3 \quad +3$

$d = (2n-1) - (2n-4) = 3$

a_3, a_4:

$2n - 1 - (2n-4) = 3$

$4n - (2n-1) = 2n + 1 = 3 \rightarrow \boxed{n = \frac{1}{2}}$

$a_4 = a_1 + 3d$

$a_2 = 2n - 4 \rightarrow 1 - 4 = -3, \; d = 3$

$a_1 = a_2 - d = -3 - (3) = -6$

$a_4 = -6 + 3(3) = \boxed{3}$

٥	$a_1 = 11$ $\quad b_1 = 3\lambda$ $\quad a_{\lambda} = 11 + 3\times\lambda = 3\lambda$ $a_1 + a_2 + a_3 = 15 \rightarrow a_1 + 3a_1 - 2a_1 \rightarrow 2a_1 = 15 \rightarrow a_1 = 11$ $a_2 = a_1 + d$ $2a_2 = 15$ $a_3 = a_1 + 2d$ $a_2 + 2a_3 = 3\lambda \rightarrow 3a_1 + 5d + 2d = 3\lambda \rightarrow 3a_1 + 7d = 3\lambda$ $\rightarrow \lambda d - 3d = 3a_1 - 2a_1 \rightarrow 2d = 4a_1 \rightarrow d = 2a_1$ $2a_1 + \lambda d = 3(2a_1 + 2d) \rightarrow 2a_1 + \lambda d = 3a_1 + 6d$ $\frac{a_{20}}{a_7} = \frac{3 \times 9a_1}{13a_1} = \boxed{3}$
٩	$S_9 = 3 S_3$ $\frac{9}{2}(2a_1 + 8d) = 9 \times \frac{3}{2}(a_1 + 2d)$ $\frac{7}{2}(2a_1 + 8d) = \frac{27}{2}(2a_1 + 2d) \times \frac{2}{7}$ $2a_1 + 8d = 3(2a_1 + 2d) \rightarrow 2a_1 + 8d = 6a_1 + 6d$ $\rightarrow 2d = 4a_1 \rightarrow d = 2a_1$ $a_{20} = a_1 + 19d = a_1 + 19(2a_1)$ $= a_1 + 38a_1 = 39a_1$ $a_7 = a_1 + 6d = a_1 + 6(2a_1)$ $= a_1 + 12a_1 = 13a_1$
١٠	$a_{\lambda} - \frac{a_5}{3} = 36 \rightarrow \frac{a_5}{3} = 18$ $\rightarrow 3 - 1 = 2 \rightarrow 3 = 9$ $a_{\lambda} = a_1 + 7d$ $a_{\lambda} = a_1 + 7(2a_1) = 15a_1$ $a_{15} = a_1 + 14d = a_1 + 14(2a_1) = 29a_1$ $\frac{a_{15}}{a_{\lambda}} = \frac{29a_1}{15a_1} = \boxed{2}$
١١	$a_1 + a_2 + a_3 = 15$ $\quad a_4 + a_5 = 27$ $3a_2 = 15$ $\quad \rightarrow a_2 + 2d + a_2 + 3d = 27$ $a_2 = 5$ $\quad a_2 + 5d = 27$ $a_3 = a_1 + d$ $\quad 5d = 15$ $a_2 = a_1 + 2d$ $\quad d = 3$ $5d = 15$ $d = 3$ $a_1 + a_2 + a_3 = 15 \rightarrow a_1 + a_1 + d + a_1 + 2d = 15 \rightarrow 3a_1 + 3d = 15 \rightarrow a_1 + d = 5$ $a_1 + 2a_2 + a_3 = 10 \rightarrow a_1 + 2a_1 + 2d + a_1 + 3d = 10 \rightarrow 3a_1 + 5d = 10 \rightarrow a_1 + 2d = 2a_2$ $a_{12} = 31$ $\quad a_1 + 2d = 2a_2$ $a_{\lambda} = 25$ $\quad a_1 + d = 5$ $a_{12} = a_1 + 11d = 31$ $\quad a_2 = 5 - d$ $a_{\lambda} = a_1 + 7d = 25$ $\quad a_1 + 2d = 2(5 - d)$ $a_1 + 11d = 31$ $\quad a_1 + 2d = 10 - 2d$ $a_1 + 7d = 25$ $\quad a_1 + 4d = 10$ $4d = 6$ $\quad a_1 + d = 5$ $d = \frac{3}{2}$ $\quad a_1 = 5 - \frac{3}{2}$ $a_1 = \frac{7}{2}$
١٢	$a_1 + a_2 + a_3 = 12$ $3a_2 = 12$ $a_2 = 4$ $a_3 = a_1 + d$ $a_2 = a_1 + d$ $a_1 + a_2 + a_3 = 12 \rightarrow a_1 + a_1 + d + a_1 + 2d = 12 \rightarrow 3a_1 + 3d = 12 \rightarrow a_1 + d = 4$ $a_1 + 2a_2 + a_3 = 14 \rightarrow a_1 + 2a_1 + 2d + a_1 + 3d = 14 \rightarrow 4a_1 + 5d = 14$ $4a_1 + 5d = 14$ $a_1 + d = 4$ $a_1 = 4 - d$ $4(4 - d) + 5d = 14$ $16 - 4d + 5d = 14$ $d = -2$ $a_1 = 4 - (-2) = \boxed{6}$
١٣	$a_1 + a_2 + a_3 = 21$ $3a_2 = 21$ $a_2 = 7$ $a_3 = a_1 + d$ $a_2 = a_1 + d$ $a_1 + a_2 + a_3 = 21 \rightarrow a_1 + a_1 + d + a_1 + 2d = 21 \rightarrow 3a_1 + 3d = 21 \rightarrow a_1 + d = 7$ $a_1 + 2a_2 + a_3 = 28 \rightarrow a_1 + 2a_1 + 2d + a_1 + 3d = 28 \rightarrow 4a_1 + 5d = 28$ $4a_1 + 5d = 28$ $a_1 + d = 7$ $a_1 = 7 - d$ $4(7 - d) + 5d = 28$ $28 - 4d + 5d = 28$ $d = 0$ $a_1 = 7 - 0 = \boxed{7}$
١٤	$a_1 + a_2 + a_3 = 15$ $3a_2 = 15$ $a_2 = 5$ $a_3 = a_1 + d$ $a_2 = a_1 + d$ $a_1 + a_2 + a_3 = 15 \rightarrow a_1 + a_1 + d + a_1 + 2d = 15 \rightarrow 3a_1 + 3d = 15 \rightarrow a_1 + d = 5$ $a_1 + 2a_2 + a_3 = 18 \rightarrow a_1 + 2a_1 + 2d + a_1 + 3d = 18 \rightarrow 4a_1 + 5d = 18$ $4a_1 + 5d = 18$ $a_1 + d = 5$ $a_1 = 5 - d$ $4(5 - d) + 5d = 18$ $20 - 4d + 5d = 18$ $d = -2$ $a_1 = 5 - (-2) = \boxed{7}$
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