Date: Sub: تمارين

١) الف) $t_n = 4n+1$

$t_n = 5, 9, 13, 17, \ldots$ (+4, +4)

ب) $t_{10} = 4(10)+1 = 41$

٢) الف) $S_{10} = \frac{10}{2}((1\times 4)+(10-1)4) = 220$

$t_n = 4n+2$

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

ب) $S_4 = \frac{4}{2}(4+18) = 2\times 22 = 44$

$t_{19} + t_{20} + t_{21} + t_{22} =$

$t_{19} = 4\times 19 + 2 = 78$

$t_{22} = 4\times 21 + 2 = 86$

٣) $t_{15} - t_{11} =$

$t_1 + 14d - t_1 - 10d = 4d = 4(2-\sqrt{2}) = 8 - 4\sqrt{2}$

$d = 2 - 1 - \sqrt{2} = 1 - \sqrt{2}$

٤) $a_n = a^{2x}, a^{2}\times a^{x}, a^{y}$

$a^{2x}\times a^{2} - a^{2x} = a^{2x}(a^2 - 1)$

$a^{2x}(1) = a^{2x}\left(\frac{a^{y-2x}-1}{2}\right)^2$

$a^{y-2x} = a$

$y - 2x = 1$

$y = 2x + 1 \Rightarrow y = 8 - 2y + 1$

$3y = 9 \quad y = 3, \quad x = 1$

$xy = 1\times 3^2 = 3^2$

$b_n = x, 2, y$

$2 - x = y - 2$

$4 - y = x$

٥) $2x - 4 + 9x = 2x - 1$

$-2, \underset{+2}{\rightarrow} 0, 2, \ldots$

$8x - 2x = -1 + 4$

$9x = 3 \quad x = \frac{1}{2}$

$t_n = 2n - 4$

$t_4 = 2(4) - 4 = 4$

Date: Sub: نکات مشترک

$n=20$

$a_n = 3, (5), 7, 9, (11), 13, 15, (17), \ldots \quad 2n+1 = 41$ ۶،

$b_n = 2, (5), 8, (11), 14, (17), 20, \ldots \quad 3n-1 = 59$

$6n-1 \leftarrow$

$6n-1 \leq 41$

$6n \leq 42$

$n \leq 7$, ۷ جمله مشترک

$a_1 + a_2 + a_3 = 21 \quad a_1 + a_3 = 2a_2 \quad 3a_2 = 21 \quad a_2 = 7$ ۷،

$a_1 + a_3 + a_5 = 105 \quad a_1 + a_5 = 2a_3 \quad 3a_3 = 105 \quad a_3 = 35 \Rightarrow a_1 = -21$

$a_3 - a_2 + a_1 = 35 - 7 - 21 = 7$

$\frac{7}{a_1} = \frac{-7}{21} = \frac{-1}{3}$

$S_3 = \frac{3}{2}(a_1 + a_3) = 15 \quad (a_1+a_3 = 10) \qquad S_2 = \frac{2}{2}(a_4 + a_5) = 25$ ۸،

$a_4 + a_5 = 2a_1 + 7d = 25 \qquad a_{10} = 3(10) - 1 = 29$

$a_1 + a_3 = 2a_1 + 2d = 10 \qquad 5d = 15$

$2, 5, 8, 11, \ldots \qquad d = 3 , a_1 = 2$

$a_n = 3n - 1$

$S_9 = 9S_3 \qquad \frac{a_{20}}{a_7} = \frac{a_1 + 19d}{a_1 + 6d} =$ ۹،

$\frac{9}{2}(2a_1 + 8d) = 9 \times \frac{3}{2}(2a_1 + 2d)$

$9a_1 + 36d = 27a_1 + 27d \qquad \frac{a_1 + 38a_1}{a_1 + 12a_1} = \frac{39a_1}{13a_1} =$

$18a_1 = 9d$

$d = 2a_1 \qquad 3$

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١٠ دنبالهٔ اول $11, 15, 19, \dots$ $a_1 = 11$

$a_4 = 4n + 7 = 4(4) + 7 = 23$ ←

$a_7 = a_1 + 6d = 35$

$6d = 24$

$d = 4$

دنبالهٔ دوم ←

$a_1 = 38$ $a_4 = 23$

$a_4 = a_1 + 3d$

$23 = 38 + 3d$

$d = -5$

۴, استفاده کنید

$38, 33, 28, 23, 18, 13, \dots$