

① $t_n = 4, 9, 13, 17, \dots$

ان $t_n = 4n + 1$

ب) $t_{10} = 4 \times 10 + 1 = 41$

② $t_n = 4, 10, 16, 22, \dots$

ان $S_{10} = \frac{10}{2} (4 + (10-1) \times 6) = \frac{10}{2} \times 58 = 290$

t_{n+1}

ب) $4 \times 1 = 4 \rightarrow n = 19, 20, 21, 22 \rightarrow n = 22 \rightarrow (4 \times 22) + 2 = 130$

$111, 122, 126, 130 \rightarrow 499$

③ $1 + \sqrt{3}, 2, 3 - \sqrt{3}$

$a_n = 1 + \sqrt{3} + (n-1)(1 - \sqrt{3}) \rightarrow a_{12} = 1 + \sqrt{3} + (12-1)(1 - \sqrt{3}) = 12 - 11\sqrt{3}$

$a_{10} = 1 + \sqrt{3} + (10-1)(1 - \sqrt{3}) = 10 - 8\sqrt{3}$

$a_{12} - a_{10} = 12 - 11\sqrt{3} - 10 + 8\sqrt{3} = -2 - 3\sqrt{3}$

④ $a_n = 2^x, x \times 2^x, xy \rightarrow \frac{xy + 2^x}{x} = 2^x \times 2^x \rightarrow y = \frac{xy + 2^x}{2^x} \rightarrow y = 2^x + 1 \rightarrow y = 2^x + 1$

$b_n = x + y$

$\frac{x+y}{2} = 2 \rightarrow x+y = 4 \rightarrow x + 2^x + 1 = 4 \rightarrow 2^x = 3 \rightarrow x = 1 \rightarrow 1+y = 4 \rightarrow y = 3$

$xy = 1 \times 3 = 3$

⑤ $2x-5, 1x-1, 4x \rightarrow \frac{2x-5+4x}{2} = 2x-1 \rightarrow 1x-5+2x-2 \rightarrow 3x-7 \rightarrow x = \frac{7}{3}$

$-5, -1, 3 \rightarrow 2n-4$

$n = 5 \rightarrow (3 \times 5) - 4 = 11$

* سوال ۶ به سوال ۷ حل شود *

⑥ $a_1 + a_2 + a_3 = 21$

$a_1 + a_2 + a_3 = 10.4$

$a_1 + a_2 + d + a_1 + d = 21$

$a_1 + a_1 + 2d + a_1 + 2d = 10.4$

$3a_1 + 2d = 21$

$3a_1 + 4d = 10.4$

$3a_1 + 2d = 21$

$3a_1 + 4d = 10.4$

$2d = 14 \rightarrow d = 7$

$d = 7 \rightarrow 3a_1 + (2 \times 7) = 21 \rightarrow 3a_1 = 7 \rightarrow a_1 = \frac{7}{3}$

$a_n = r, 2r, 3r, \dots, rn+1 \rightarrow n = 1$ (المجموع)
 $b_n = r, 2r, 3r, \dots, rn-1$
 $+r$

$\rightarrow 2, 3, 4, 5 \rightarrow \frac{r(1-5)}{r} + 1 = 1$

$a_1 + a_2 + a_3 = 15 \rightarrow \begin{cases} (ra_1 + rd = 15) \times r \\ (ra_1 + rd = 15) \times r \end{cases} \begin{cases} 4a_1 + 4d = 15 \\ -4a_1 - 4d = -15 \end{cases}$
 $a_1 + a_2 = 15 \rightarrow (ra_1 + rd = 15) \times r \rightarrow -4a_1 - 4d = -15$
 $-15d = -15 \rightarrow d = 1$
 $\rightarrow ra_1 + 9 = 15 \rightarrow ra_1 = 6 \rightarrow a_1 = 2$

a_1, a_2, a_3
 $\rightarrow a_n = rn-1 \rightarrow a_{10} = r(10-1) = 9$

$\frac{n}{r} (ra_1 + (n-1)d) \rightarrow \frac{n}{r} (ra_1 + (n-1)d) \rightarrow \frac{n}{r} (ra_1 + nd) = \frac{rv}{r} (ra_1 + rd)$
 $\rightarrow a_1 = \frac{d}{r}$

$a_{r_0} = a_1 + 19d \rightarrow 19, 5d$
 $a_v = a_1 + 4d \rightarrow 4, 5d$
 $\frac{a_{r_0}}{a_v} = \frac{19, 5d}{4, 5d} = 19$

$a_1 = 11 \rightarrow a_1 + 4d = 15 \rightarrow 15 = 4d \rightarrow d = 1$

$a_n = 11 + (n-1)1 \rightarrow 12n + 1$

$a_1 = 14 + 1 = 15$
 $a_1 = 15 \rightarrow a_1 + 4d = 15 \rightarrow 15 = 4d \rightarrow d = 1$
 $15 = 4d \rightarrow d = 1$
 $a_n = 15 \rightarrow \frac{r}{r} (n-1)d \rightarrow 15 = 15$

a_1, a_2, a_3, a_4, a_5
 $1, 2, 3, 4, 5$
 a_1, a_2, a_3, a_4, a_5
 $1, 2, 3, 4, 5$