

الف) $t_n = f_n + 1$ $t_n = 5, 9, 13, 17, \dots$

ب) $t_{10} = 15 \times 10 + 1 = 151$

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$t_n = 4, 10, 16, 22, \dots$

الف) $s_n = \frac{n}{2} (a_1 + a_n) \leq s_n = \frac{n}{2} (2a_1 + (n-1)d) \Rightarrow \frac{10}{2} (2 \times 4 + (10-1) \times 6) = 245$

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ب) $t_{10} = 15 \times 10 + 1 = 151$ $t_{19} = 19 \times 15 + 1 = 286$ $t_{29} = 29 \times 15 + 1 = 436$

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

$\Rightarrow d = 1 - \sqrt{3}$

$t_{19} = 19 \times 2 + (19-1)(1-\sqrt{3}) = 39 - 18\sqrt{3}$

$a_n = 2^n, 3 \times 2^n, 4 \times 2^n, \dots$

$\Rightarrow 2^{n+1} = 2^n \times 2 \Rightarrow r = 2$

$b_n = x, y \Rightarrow r = \frac{y}{x} \Rightarrow xy = r^2$

$r_{n-y} = -1$
 $x+y = r$
 $r_x = r$

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$2n-5, 2n-1, 4n, \dots$

$t_2 = 4n + 2$

$4 \times \frac{1}{2} + 2 = 4$

$t_1 = 1 \times 2 = 2$

$2n+2 = 4n \Rightarrow 2n = 2 \Rightarrow n = 1$

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$4n+d < 4n \Rightarrow 4n < 4n \Rightarrow 1 < 0$

$a_n = 2, 11, 13, 15, 17$ مستخرج 11

$b_n = 2, 11, 14, 17$ مستخرج 11

$4n-1 \Rightarrow 41, 4n-1 \Rightarrow 4n = 42 \Rightarrow n=10$

$r_{n+1} \Rightarrow r \times (r_0 + 1) = r_1$

$r_{n-1} \Rightarrow r \times (r_0 - 1) = r_{n-1}$

$4n-1 = 41 \Rightarrow 4n = 42 \Rightarrow n=10$ I II III (V)

$a_1 + a_2 + a_3 = 11 \Rightarrow a_1 - d + a_1 + d + a_1 + 2d = 3a_1 = 11 \Rightarrow a_1 = 11/3$

$a_1 + a_2 + a_3 = 10d \Rightarrow a_1 - d + a_1 + d + a_1 + 2d = 3a_1 + 2d = 10d \Rightarrow 3a_1 = 8d$

$\frac{a_1 - a_2 + a_3}{a_1} = ? \Rightarrow \frac{r_0 - r - r_1}{-r_1} = \frac{r}{-r_1} = \frac{1}{-r}$

a_1, a_2, a_3

$\frac{a_1}{r}, \frac{a_2}{r}, \frac{a_3}{r}$

$d = 2r \Rightarrow a_1 = r - 2r = -r$

$a_1 + a_2 + a_3 = 10 \Rightarrow a_1 + a_1 + d + a_1 + 2d = 3a_1 + 3d = 10 \Rightarrow a_1 + d = 10/3$

$a_1 + a_3 = 10 \Rightarrow a_1 + r_0 + a_1 + 2d = 2a_1 + 2d = 10 \Rightarrow a_1 + d = 5$

$a_1 = ?$

$\frac{a_1 + 4d}{a_1 + d} = \frac{r + 4r}{r + r} = \frac{5r}{2r} = \frac{5}{2}$

$5d = 10 \Rightarrow d = 2 \Rightarrow a_1 + d = 5 \Rightarrow a_1 = 3$

$s_9 = 9s_4 \Rightarrow \frac{9}{r} (a_1 + a_9) = 9 \times \frac{r}{r} (a_1 + a_9) \Rightarrow \frac{9}{r} a_1 + \frac{9}{r} a_9 = \frac{9}{r} a_1 + \frac{9}{r} a_9$

$\frac{a_{r_0}}{a_r} = ?$

$\frac{a_{r_0}}{a_r} = \frac{a_1 + 14d}{a_1 + 4d} = \frac{\frac{r}{r} d}{\frac{1}{r} d} = \frac{r}{1} = r$

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

$\frac{1}{r} a_1 + 14d - \frac{r}{r} a_1 - 4d = a_1 \Rightarrow r a_1 = d \Rightarrow a_1 = \frac{1}{r} d$

$\frac{1}{r} a_9 - \frac{r}{r} a_4 = a_1$

$d = \frac{b-a}{n+1} \Rightarrow -a = \frac{1r-rn}{n+1} \Rightarrow -a_1 - a = -10 \Rightarrow -d(n+1) = -10 \Rightarrow d(n+1) = 10$

$t_1 = m, t_r = r \Rightarrow t_r = t_1 + rd = r \Rightarrow rd = -a \Rightarrow d = -a$

$n+1 = r \Rightarrow n = r-1$

$t_1 = 11$

$t_r = r \Rightarrow t_1 + rd = r \Rightarrow rd = r - 11 \Rightarrow d = 1 \Rightarrow t_r = t_1 + rd = 11 + 1r = r$