

$$t_n = 6, 9, 12, 15$$

$\underbrace{\quad}_{4} \quad \underbrace{\quad}_{4} \quad \underbrace{\quad}_{4}$

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$$t_n = a + (n-1)d = t_{n+1} \quad \checkmark$$

(الف)

$$t_1 = 4 + 1 = 5 \quad \checkmark$$

(ب)

$$t_n = 7, 10, 13, 16, \dots$$

$$t_n = t_{n+2} \quad t_1 = 7$$

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$$a(7+13) = 10 \quad \checkmark$$

(الف)

$$t_{49} = 117 + 2 = 119 \quad t_{49} = 119 + 2 = 121$$

$$\frac{4}{2}(119+121) = 494 \quad \checkmark$$

(ب)

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

$\underbrace{\quad}_{1+\sqrt{3}} \quad \underbrace{\quad}_{1+\sqrt{3}} \quad d = 1-\sqrt{3}$

$$t_n = 1+\sqrt{3} + (n-1)(1-\sqrt{3}) \Rightarrow t_{40} - t_{20} = 2d = 2-2\sqrt{3} \quad \checkmark$$

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

$$b_n = 2, 3, 4$$

$$a = 2 \times 2^n = 2 \times 2^n \Rightarrow \frac{a}{2} = \frac{2 \times 2^n}{2} = 2^n = d$$

$$\Rightarrow ay = 2 \times 2^n + 2 \times 2^n = 4 \times 2^n = 2^{n+2} \Rightarrow y = 2^{n+2}$$

$$2 = \frac{a+y}{2} = \frac{a+2^{n+2}}{2} = \frac{2^{n+2}}{2} \Rightarrow 2 = 2^{n+1} \Rightarrow n = 1 \Rightarrow y = 3$$

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$$\Rightarrow a \times y = 1 \times 3 = 3 \quad \checkmark$$

$$a_n = 2a_{n-1}, 2a_{n-1}, 2a_{n-1}$$

$\underbrace{\quad}_{2} \quad \underbrace{\quad}_{2} \quad \underbrace{\quad}_{2}$

$$-3, 0, 3$$

$$2n-1+3 = 2n \Rightarrow 2n+3 = 2n \Rightarrow 2n = 2 \Rightarrow n = 1$$

$$a_n = -3 + (n-1)2 = 2n-5 \Rightarrow a_5 = 12-5 = 7 \quad \checkmark$$

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$a_n = r, \omega, v, \dots$
 $b_n = r, \omega, v, \dots$
 $a_n = r_{n+1}$
 $a_r = r_1$

$r, \omega, v, a, 11, 13, 1\omega, 1v, 1a, r, r, \dots$
 $r, \omega, 11, 13, 1v, r, r, r, r, r, \dots$
 $a, 11, 1v, r, \dots$
 $(n = n-1) \quad y_{n-1} \leq r_1 \Rightarrow y_n \leq r_2 \Rightarrow n \leq v \rightarrow \text{نوع } v$

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$a_1 + r_r + a_r = r_1 = r a_1 + r d \Rightarrow r d = 1 r \Rightarrow d = r n = r a_1 + 1 r = r_1$
 $a_1 + a_r + a_\omega = r a_1 + r d = 1 \cdot \omega \Rightarrow r a_1 = -r r \Rightarrow a_1 = -r_1$

$\frac{a_r - a_r + a_1}{a_1} = \frac{a_1 + r d - a_1 - d + a_1}{-r_1} = \frac{-r_1}{-r_1} = \frac{v}{-r_1} = \frac{1}{r}$

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$a_1 + a_r + a_\omega = 1\omega = r a_1 + r d = 1\omega$
 $a_r + r a_\omega = r\omega \Rightarrow r a_1 + v d = r\omega$
 $a_n = r + (n-1)r = r_{n-1} \Rightarrow a_1 = r_1$

$r a_1 + r d = 1\omega$
 $r a_1 + v d = r\omega \Rightarrow r a_1 + v d - r a_1 - r d = r\omega - 1\omega$
 $\Rightarrow (v-r)d = r\omega - 1\omega \Rightarrow d = \frac{r\omega - 1\omega}{v-r}$
 $\Rightarrow r a_1 + r \frac{r\omega - 1\omega}{v-r} = 1\omega \Rightarrow r a_1 + \frac{r^2\omega - r\omega}{v-r} = 1\omega$
 $\Rightarrow r a_1 + \frac{r\omega(r-1)}{v-r} = 1\omega \Rightarrow r a_1 = 1\omega - \frac{r\omega(r-1)}{v-r}$
 $\Rightarrow a_1 = \frac{1\omega(v-r) - r\omega(r-1)}{r(v-r)}$

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$\frac{1}{r} (a_1 + a_r) = \frac{1}{r} \frac{r}{r} (a_1 + a_r) \Rightarrow \frac{1}{r} a_1 + \frac{1}{r} a_r = \frac{r}{r} a_1 + \frac{r}{r} a_r$
 $\Rightarrow \frac{1}{r} a_r - \frac{r}{r} a_r = \frac{r}{r} a_1 - \frac{1}{r} a_1 \Rightarrow \frac{1}{r} (a_1 + r d) - \frac{r}{r} (a_1 + r d) = a_1$
 $\frac{1}{r} a_1 + \frac{r}{r} d - \frac{r}{r} a_1 - \frac{r}{r} r d = a_1 \Rightarrow d = r a_1 \Rightarrow a_1 = \frac{1}{r} d$
 $\frac{a_r}{a_v} = \frac{a_1 + r d}{a_1 + r d} = \frac{r a_1}{r a_1} = 1$

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$a_1 = 11$
 $a_v = r\omega$
 $b_1 = r_1$
 $b_r = a_r = r r$
 $b_{a_1} = 1 r$

$d = \frac{r\omega - 11}{r} = r \Rightarrow a_r = 11 + r r = r r$
 $d = \frac{r r - r_1}{r} = \frac{-1\omega}{r} = -\omega$
 $-\omega = \frac{r r - r_1}{a+1} = \frac{-r\omega}{a+1} \Rightarrow a+1 = \omega \Rightarrow a = r$

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نوع جانی