۶

$a_1+a_2+\cdots+a_5 = \frac{1}{3}(a_4+a_5+\cdots+a_{10})$

$\frac{5}{2}(a_1+a_5) \qquad \frac{5}{2}(a_4+a_{10})$

$\frac{5}{2}(2a_1+4d) = \frac{1}{3}\times\frac{5}{2}(2a_1+14d)$

$6a_1+12d = 2a_1+14d$

$4a_1 = 2d \longrightarrow d = 2a_1$

$\frac{a_2}{a_1} = ?$

$\frac{a_1+2a_1}{a_1} = \frac{3a_1}{a_1} = 3$

(۲) ✓

۷

$t_n = t_{n-2} + 15 \longrightarrow 2d = 15 \quad d = 5$

$\frac{(t_9-t_5)(t_9+t_5)}{t_7} = \frac{4d\times 2t_7}{t_7} = 8d = 40$

(۲) ✓

۸

$d = \frac{b-a}{n+1} = \frac{2+\sqrt{3}-(2-12\sqrt{3})}{12} = \frac{2+\sqrt{3}-2+12\sqrt{3}}{12} = \frac{12\sqrt{3}}{12} = \sqrt{3}$

(۲) ✓

۹

$a_1 = 2 \qquad$ واسطه‌ها $= a_{n+1} = 11$

$d = \frac{22-2}{4n-2} = \frac{20}{2(2n-1)} = \frac{10}{2n-1}$

$a_n = a_1+(n-1)d \longrightarrow a_{n+1} = 2+n\frac{10}{2n-1} = 11$

$n\frac{10}{2n-1} = 9 \qquad 10n = 18n-9$

$9 = 8n \qquad n = 3$

(۲) ✓

۱۰

$a_n+a_{n+4} = a_3+a_{12} \longrightarrow n+n+4 = 20 \qquad 2n = 16 \qquad n = 8$

$a_8 = 3a_{\frac{n}{2}} \qquad a_8 = 3a_4 \longrightarrow a_1+7d = 3[a_1+3d] \qquad a_1+7d = 3a_1+9d$

$2a_1 = -2d \qquad a_1 = -d \qquad a_1+(n-1)d \qquad -d+(n-1)d = 0 \qquad n = 2$

جمله ۲ = ۰

(۲) ✓

برتر پرورش — پاسخنامه تشریحی تکلیف شماره ۲ — الگو و دنباله — کلاس دهم A دختر — ۱۶:۳۰ و ۱۸:۳۰

۱

$a_1 = 40$ $\quad a_4 = 61$ $\quad a_n = 208$

$a_4 = a_1 + 3d = 61$

$3d = 21$

$d = 7$

$40 + (n-1)7 = 208$

$7(n-1) = 168$

$n-1 = 24$

$n = 25$ ✓ ۲

۲

$a_1 = 101$ $\quad d = 7$ $\quad 101, 108, 115, \ldots$

$101 + (n-1)7 < 1000$

$7(n-1) < 899$

$7n < 906 \Rightarrow n = 129$ ✓ ۲

۳

$a + c = 2b \longrightarrow a + b + c = 3b$.

$a_{n+2} = -6n + 12 \longrightarrow a_{n+2} - 2n + 4$ ✓ ۲

$n = 15 \longrightarrow a_{15} = -30 + 4 = -26$

$n = 6 \longrightarrow a_8 = -12 + 4 = -8$

$a_{15} + a_8 = -26 - 8 = -34$

۴

$a_3 + a_{13} = 258$ $\quad 2^n - 1 + 2^{2n} - 3 = 2 \times 2^{n+1}$ $\quad 2^n(2^n + 1) - 4 = 4 \times 2^n$

$2^n(2^n + 1) = 4 \times 2^n + 4 = 4(2^n + 1) \Rightarrow 2^n = 4 \Rightarrow n = 2 \longrightarrow$

$a_3 = 2^n - 1 = 3$ $\quad a_8 = 2^{n+1} = 8$ $\quad a_{13} = 2^{2n} - 3 = 13 \Rightarrow 3 + 8 + 13 = 24$

✓ ۲

۵

$a_{12} - a_{10} = 5 \longrightarrow 2d = 5 \Rightarrow d = 2/5$ $\quad a_{21} = ?$

$a_{10} + a_{12} = 25$

$a_1 + 9d + a_1 + 11d = 2a_1 + 20d = 25$

$2a_1 = -25$

$a_1 = -12/5$ ✓ ۲

$-12/5 + (20 \times 2/5) = 37/5$