

$$\begin{aligned}
 a_1 &= \varepsilon_0 \rightarrow \frac{y_1}{x} = \varepsilon_0 + \omega d \\
 a_2 &= y_1 \rightarrow d = v \\
 a_n &= \varepsilon_0 \quad n=? \rightarrow \varepsilon_0 + (n-1)v = \varepsilon_0 \\
 &\quad \varepsilon_0 + vn - v = \varepsilon_0 \rightarrow vn = 1v \rightarrow \underline{n = 2}
 \end{aligned}
 \tag{1}$$

$$\begin{aligned}
 a_n &= \underline{vn + \omega} \\
 &\rightarrow 1 \leq vn + \omega \leq 999 \rightarrow 1 \leq n \leq 142 \rightarrow \frac{142}{4} + 1 = \underline{36}
 \end{aligned}
 \tag{2}$$

$$\begin{aligned}
 a_{n+1} + a_{n+2} + a_{n+3} &= -4n + 12 \\
 a_1 + nd + a_1 + nd + d + a_1 + nd + d &= \omega a_1 + \omega nd + \omega d = -4n + 12 \\
 \omega a_1 + d(\omega n + \omega) &= -4n + 12
 \end{aligned}
 \tag{3}$$

$$\begin{aligned}
 r^n - 1 &= a_1 \omega \\
 r^{n+1} &= a_1 \\
 r^n - r &= a_1 \omega \\
 &\downarrow n=2 \\
 r + n + 1\omega &= \underline{r} \\
 a_{1\omega} - a_1 &= a_1 + \omega d - a_1 = \omega d \\
 a_n - a_\omega &= a_\omega + \omega d - a_\omega = \omega d \\
 &\quad a_{1\omega} - a_1 = a_1 - a_\omega \\
 r^n - r &= r^{n+1} - r^n = r^n - r^{n+1} \\
 r^n - r^{n+1} - r^{n+1} + r^n &= 0 \\
 r^n(1 - r - r + 1) &= 0 \rightarrow \underline{n = 2}
 \end{aligned}
 \tag{4}$$

$$\begin{aligned}
 a_{12} - a_1 &= \omega \rightarrow a_{12} + \omega d - a_1 = \omega \rightarrow \omega d = \omega \quad | \quad d = \frac{\omega}{\omega} \\
 a_{12} + a_1 &= \omega \rightarrow 2a_1 + \omega d = \omega \rightarrow a_1 = 1
 \end{aligned}
 \tag{5}$$

$$a_{21}=? \rightarrow a_{10} + 11d = 10 + \frac{\omega \omega}{2} = \frac{\sqrt{\omega}}{2} \quad \underline{a_{21} = \frac{\sqrt{\omega}}{2}} \quad | \quad \omega \neq 0$$

$$w_{a_1+d} = \frac{1}{w} (w_{a_1} + w_{a_1+d})$$

(6)

$$\hookrightarrow w(a_1+d) = \frac{1}{w} (w_{a_1} + w_{a_1+d}) \rightarrow w_{a_1+d} = a_1+d$$

$$w_{a_1} - d > 0 \rightarrow w_{a_1} = d$$

$$\frac{a_1}{a_1} = ? \rightarrow \frac{a_1+d}{a_1} = \frac{a_1+d}{a_1} = \frac{w_{a_1}}{a_1} = \frac{w}{a_1}$$

(7)

$$\frac{r+\sqrt{w} - r+1\sqrt{w}}{1\sqrt{w}} = \frac{1\sqrt{w}}{1\sqrt{w}} = \sqrt{w}$$

(8)

$$d = \frac{w_{n-1} - r}{r_{n-1}} = \frac{1\omega}{r_{n-1}}$$

$$a_n = a_1 + (n-1)d$$

(9)

$$r + \frac{n\omega}{r_{n-1}} = 1$$

$$a_{n+1} = r + (n)d$$

$$\frac{1\omega n}{r_{n-1}} = 9 \rightarrow 1\omega n = 1\omega n - 9 \rightarrow 9 = n \rightarrow n = 9$$

$$a_n + a_{n+1} = a_1 + a_2 \rightarrow r_{n+1} = r_0 \rightarrow n = 1$$

(10)

$$a_n = w_{a_1} \rightarrow a_n = w_{a_1} \rightarrow a_1 + d = w_{a_1} + d \rightarrow r_{a_1} + d = 0$$

$$a_1 = 0 \rightarrow \frac{a_1+d}{a_1} = 0$$