

$$t_1 = \varepsilon_0$$

$$t_\varepsilon = t_1 + 3d \rightarrow 91 = \varepsilon_0 + 3d$$

$$t_\varepsilon = 91$$

$$31 = 3d \rightarrow d = 10$$

$$t_n = 201$$

$$t_n = vn + 33 = 201$$

$$vn + 33 = 201$$

$$vn = 168 \rightarrow n = 48$$

(P) ✓

$$91 + 3 = 101$$

$$99\varepsilon + 3 = 99V$$

$$101, 101, 110, \dots, 99V$$

$$\frac{99V - 101}{V} + 1 = 129$$

$$S_{129} = \frac{129}{2} (101 + 99V) = \frac{129}{2} (1091) = 70121$$

$$S_n = \frac{n}{2} (a_1 + a_n) \quad (P) \checkmark$$

$$a_{n+1} = a_n + d$$

$$a_{n+2} = a_n + 2d$$

$$a_{n+3} = a_n + 3d$$

$$a_{n+1} + a_{n+2} + a_{n+3} = 3a_n + 6d$$

$$3a_n + 6d = -4n + 12$$

$$a_n + 2d = -\frac{4}{3}n + 4$$

$$a_1 + (n-1)d + 2d = -\frac{4}{3}n + 4$$

$$a_n = -\frac{4}{3}n + 4 - d$$

جواب: $3a_n + 6d = -4n + 12$

(1)

$$3(-\frac{4}{3}n + 4 - d) + 6d = -4n + 12 - 3d + 6d$$

$$3d = -4 \rightarrow d = -\frac{4}{3}$$

$$a_{14} + a_1 = (-14 - d) + (-30 - d) = -44 - 2d$$

$$a_{14} + 14d + a_1 + 7d$$

$$2a + 21d$$

$$\rightarrow -44 - 2(0) = -44$$

$$2(4) + 21(-\frac{4}{3}) = -44$$

$$t_w = r^n - 1$$

$$t_n = r^{n+1}$$

$$t_{1w} = r^{n+1} - r$$

$$a_{1w} - a_n = a_n - a_w$$

$$(r^n - r) - r^{n+1} = r^{n+1} - (r^n - 1)$$

$$r^n - r - r^{n+1} = r^{n+1} - r^n + 1$$

$$r^n - r - r^{n+1} - r^{n+1} + r^n - 1 = 0$$

$$r^n - r(r^n) - \varepsilon = 0 \quad \xrightarrow{t=r^n} \quad t - rt - \varepsilon = 0$$

$$(t - \varepsilon)(t + 1) = 0 \quad \rightarrow \quad t = \varepsilon \quad \text{or} \quad t = -1 \quad \Rightarrow \quad \boxed{t = \varepsilon} \checkmark$$

$$r^n = \varepsilon \rightarrow n = 1$$

② ✓

$$a_w = r^1 - 1 = r$$

$$a_n = r^{1+1} = r^2 = 1$$

$$a_{1w} = r^1 - r = 1 - r = 1 - 1 = 0$$

$$S = w + 1 + 1w = r\varepsilon$$

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

$$a_{10} = a_1 + 9d$$

$$a_{14} = a_1 + 13d$$

$$a_{14} - a_{10} = \omega$$

$$(a_1 + 13d) - (a_1 + 9d) = \omega$$

$$4d = \omega \rightarrow d = \frac{\omega}{4}$$

ω

$$a_{14} + a_{10} = 2\omega$$

$$(a_1 + 13d) + (a_1 + 9d) = 2\omega$$

$$2a_1 + 22d = 2\omega$$

$$2a_1 + 22\left(\frac{\omega}{4}\right) = 2\omega$$

(2) ✓

$$2a_1 + 11\omega = 2\omega \rightarrow a_1 = -\frac{9}{2}\omega$$

$$a_{14} = a_1 + 13d$$

$$a_{14} = -\frac{9}{2}\omega + 13\left(\frac{\omega}{4}\right) = \frac{11}{4}\omega$$

$\uparrow$
 a_{14}

جواب
سوال

$$S_n = \frac{\omega}{r} (ra_1 + \epsilon d) \quad S_{10} = \frac{10}{r} (ra_1 + 4d)$$

$$= \omega (ra_1 + 4d)$$

$$S_{10} - S_n = \omega (ra_1 + 4d) - \frac{\omega}{r} (ra_1 + \epsilon d)$$

$$S_n = \frac{1}{\omega} (S_{10} - S_n)$$

$$r \times \frac{\omega}{r} (ra_1 + \epsilon d) = \omega (ra_1 + 4d) - \frac{\omega}{r} (ra_1 + \epsilon d)$$

$$10(ra_1 + \epsilon d) = 10(ra_1 + 4d) - \omega(ra_1 + \epsilon d)$$

$$10ra_1 + 40d - 10a_1 - 40d = 10a_1 + 40d$$

$$10a_1 = 10d \rightarrow a_1 = \frac{d}{r}$$

$$a_r = a_1 + d = \frac{d}{r} + d = \frac{rd}{r}$$

$$\rightarrow \frac{d_r}{a_1} = \frac{\frac{rd}{r}}{\frac{d}{r}} = r$$

مجموعی دهم

مجموعی اول

سوم

✓

$$t_n = t_{n-w} + 1a$$

$$wd = 1a \rightarrow d = a$$

$$t_a = a + 1d = a + \epsilon_0$$

$$t_w = a + \epsilon d = a + \kappa_0$$

$$t_v = a + \gamma d = a + \nu_0$$

$$t_a^{\gamma} - t_w^{\gamma} = (t_a - t_w)(t_a + t_w)$$

$$\rightarrow \nu_0(\kappa a + \gamma_0) = \epsilon_0 a + \kappa_0 \quad \textcircled{\nu} \checkmark$$

$$t_v = a + \nu_0$$

$$\frac{t_a^{\gamma} - t_w^{\gamma}}{t_v} = \frac{\epsilon_0 a + \kappa_0}{a + \nu_0} = \epsilon_0 \left(\frac{a + \nu_0}{a + \nu_0} \right) = \epsilon_0$$

$$t_a^{\gamma} - t_w^{\gamma} = \boxed{\epsilon_0 t_v}$$

$$a_1 = r(1 - \sqrt{r}) = r - r\sqrt{r}$$

$$a_{1\epsilon} = r + \sqrt{r}$$

$$a_{1\epsilon} = a_1 + 13d \rightarrow r + \sqrt{r} = (r - r\sqrt{r}) + 13d$$

(2) ✓

$$\text{نفسه } \rightarrow d = \sqrt{r}$$

$$(\epsilon n - r) + r = \epsilon n - 1 \leftarrow \text{نفسه } \rightarrow$$

$$a_{\epsilon n - 1} = a_1 + (\epsilon n - r)d$$

$$(\epsilon n - r)d = r \rightarrow d = \frac{r}{\epsilon n - r} = \frac{10}{r n - 1}$$

$$a_n = a_1 + (n - 1)d = 11$$

$$(n - 1) \left(\frac{10}{r n - 1} \right) = 9 \quad n d = 9$$

$$10n - 10 = 11n - 9 \quad n \left(\frac{10}{r n - 1} \right) = 9$$

$$n = 3$$

$$\frac{-9}{r} = \frac{10n}{r} \rightarrow n = -1$$

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

$$a_{n+\epsilon} = a + (n + \epsilon)d$$

$$a_n + a_{n+\epsilon} = a_r + a_v$$

$$r n + \epsilon = r \rightarrow n = 1$$

$$[a + (n - 1)d] + [a + (n + \epsilon)d] = [a + r d] + [a + \epsilon d]$$

$$a_1 + r d = r (a_1 + \epsilon d) \rightarrow a_1 = -d$$

$$(r n + r)d = 11a \rightarrow r n + r = 11 \rightarrow n = 3$$

$$a_n = \frac{n}{r} \rightarrow a_r = \frac{r}{r} \quad t d = r d = t = r$$

$$a_r = a + r d = \frac{r}{r}$$

$$a = \frac{r}{r} - r d$$

$$a_k = 0$$

$$a + (k - 1)d = 0$$

$$k = r - \frac{r}{r d}$$

$$\frac{r}{r} - r d + (k - 1)d = 0 \quad (k - r)d = -\frac{r}{r}$$