

$$a_1 = f_0$$

$$a_1 = 41 \rightarrow a_1 + d$$

$$\begin{cases} a_1 = f_0 \\ a_1 = 41 - d \end{cases} \rightarrow d = 41 - f_0 \rightarrow d = 21$$

$$f_0 \cdot n = a_1 + (n-1)d \rightarrow f_0 \cdot n = f_0 + (n-1) \cdot 21 \rightarrow f_0 \cdot n = f_0 + 21n - 21 \rightarrow f_0 \cdot n = 21n - 20 \rightarrow n = 20$$

$$\frac{100}{v} = 34 \quad \text{في 34} \quad a_1 = 100 + 1 \Rightarrow 101$$

$$\frac{999}{v} = 147 \quad \text{في 147} \quad a_n = 999 - 2 \Rightarrow 997$$

$$d = v$$

$$997 = a_1 + (n-1)d \rightarrow 997 = 101 + (n-1)v \rightarrow 997 = 101 + vn - v \rightarrow 997 = 101 + vn - v \rightarrow vn = 906 \rightarrow n = 147$$

$$\begin{aligned} a_{n+1} &\rightarrow a + nd \Rightarrow & 0_{n+1} + a_{n+2} + a_{n+3} &= 12a + (3n-3)d = -4n + 17 \\ a_{n+2} &\rightarrow a + (n+1)d & \hookrightarrow 3d &= -4 \rightarrow d = -\frac{4}{3} \\ a_{n+3} &\rightarrow a + (n+2)d & 12a + 3d &= 17 \rightarrow 12a = 17 \rightarrow a = \frac{17}{12} \end{aligned}$$

$$\begin{aligned} a + (n-1)d &\rightarrow -2n + 1 \\ a_{17} &= 1 - 2 \cdot 16 = -31 \\ a_{17} &= -14 + 17 = 3 \end{aligned}$$

$$-31 - 1 = -32$$

$$a_r = r^x - 1 \quad a_n = r^{n+1} \quad a_{17} = r^{17} - r$$

$$\begin{aligned} r a_n &= a_r + a_n \rightarrow r(r^{n+1}) = r^{r^x} + r^{n+1} - 1 \rightarrow r^{r^x} + r^{n+1} - 1 = r^x + r^{n+1} - 1 \\ r^{r^x} - r^x + r^{n+1} - 1 &= 0 \xrightarrow{d=r^x} d - r^x + d - 1 = 0 \rightarrow (d-r^x)(d+1) \rightarrow d = r^x \rightarrow r^x = r^x \rightarrow x = r \end{aligned}$$

$$a_r = f - 1 = 2$$

$$a_n = r^x = 1$$

$$a_{17} = r^f - r = 17$$

$$17 + 1 + 17 = 35$$

$$a_{17} - a_{10} = 7d \rightarrow 7d = 7 \rightarrow d = 1$$

$$a_{17} + a_{10} = 7d \rightarrow a_{17} + 10d = 7d \rightarrow a_{17} = 7d - 10d \rightarrow a_{17} = -3d$$

$$a_{17} = -3d + 10d = 7d \rightarrow 7d = 7 \rightarrow d = 1$$

$$S_{10} = a_1 + a_2 + a_3 + \dots + a_{10} = 10a + 45d$$

$$r(a_1 + 10d) = 10a + 45d$$

$$10a + 10rd = 10a + 45d \rightarrow 10a - 10a - 10d = 0 \rightarrow 0(r - d) = 0 \rightarrow r = d$$

$$a_r = a + d \rightarrow a + ra \rightarrow ra$$

$$\frac{ra}{a} = r$$

$$a = a_{n-r} + 10 \rightarrow a + (n-1)d \rightarrow a + (n-5)d + 10 \rightarrow (n-1)d = (n-5)d + 10 \rightarrow (n-1)d - (n-5)d = 10 \rightarrow nd - d - nd + 5d = 10 \rightarrow d = 5$$

$$\hookrightarrow a_0 = a + 5d = a + 10$$

$$a_v = a + 4d = a + 20$$

$$a_3 = a + 1d = a + 5$$

$$a_3^r - a_0^r \rightarrow (a_3 - a_0)(a_3 + a_0) \rightarrow (a + 5 - a - 10)(a + 5 + a + 10)$$

$$\hookrightarrow r_0(r_0 + 4_0) \rightarrow f_0a + 1r_0 = a_3^r + a_0^r$$

$$\frac{a_3^r - a_0^r}{a_v} = \frac{f_0a + 1r_0}{a + 20} = f_0$$

$$a = r(1 - 4\sqrt{r}) \rightarrow r - 4r\sqrt{r}$$

$$b = r + \sqrt{r}$$

$$d = \frac{b-a}{n-1} \rightarrow \frac{r + \sqrt{r} - (r - 4r\sqrt{r})}{1r + 1} \rightarrow \frac{r + \sqrt{r} - r + 4r\sqrt{r}}{1r} = \frac{1r\sqrt{r}}{1r} \Rightarrow \sqrt{r}$$

$$b = 3r, a = r, n = 4n - 3$$

$$\frac{3r - r}{4n - 3 + 1} = \frac{r_0}{4n - 2} \rightarrow \frac{10}{4n - 2} \rightarrow d$$

$$a_{n+1} \rightarrow a_n + nd \rightarrow r + n\left(\frac{10}{4n-2}\right) = 11 \rightarrow n\left(\frac{10}{4n-2}\right) = 9 \rightarrow 10n = 18n - 9 \rightarrow n = 3$$

$$\frac{10}{4-1} = \frac{d}{r}$$

$$r, 10, 11, \boxed{11} \text{ p/10, 11}$$

$$\begin{cases} a_n + a_{n+1} \rightarrow ra_n + rd \rightarrow ra_n + 1d \rightarrow ra_n = ra + 1d \rightarrow a_n = a + 1d \rightarrow n = 1 \\ a_r + a_v \rightarrow ra_r + rd \end{cases}$$

$$a_1 = ra_r \rightarrow a + vd = ra_1 + 9d \rightarrow ra + 9d = 0 \rightarrow \underbrace{a+d=0}_{a_r} \quad a_r = 0$$