

$$B \text{ با } a_1(q+1) \approx 21$$

$$a_1^r q^r = r^r \Rightarrow a_1 = r^r \Rightarrow a_1 = 21, q = 2^r$$

$$q = \frac{1}{2}, a_1 = 21, a_2 = 4, a_3 = 1$$

$$x^r = (x^r + r)(x^r - r) \Rightarrow xy = y^r + ry - 1 \Rightarrow y^r - ry - 1 = 0 \Rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{r \pm \sqrt{r^2 + 4}}{2} = -2, 4$$

آنگاه $y = x^r$ می شود $x^r = y$ می شود

$$a_1 = 1, r = 2 \Rightarrow q = \frac{1}{2}$$

$$S_V = \frac{1}{V} \times 1 = \frac{1}{121} \times 12 = \frac{12}{11}$$

$$S_\omega = a(1 + q + q^2 + q^3 + q^4) \Rightarrow S_\omega = 12 \times \frac{121}{11} = 132$$

$$d = \frac{r^r - 1}{r + 1} = \frac{r^r}{r} = 10/\omega \Rightarrow A = a_r = 1 + (r \times 10/\omega) = 32/\omega$$

$$q^r = \frac{r^r}{1} \Rightarrow q = r \quad B = t_r = 1 \times r^{r-1} = 1$$

$$A + B = 32/\omega + 1 = 40/\omega$$

$$t_n = -rf, \frac{r\omega}{r}, \dots \quad d = -\frac{r\omega}{r} + (-rf) = \frac{1}{r} \Rightarrow t_{1,1} = \dots + rf + \underbrace{(10-1) \times \frac{1}{r}}_{r\omega} = 1$$

$$a_n = 121, a_r, \dots \quad a_n = 1, a_1 = 121 \Rightarrow q^r = \frac{1}{121} \Rightarrow q = \frac{1}{11}$$

~~Handwritten scribbles and crossed-out equations.~~

$$a_1 + rd, a_1 + 2d, a_1 + 3d \Rightarrow (a_1 + rd)^r = (a_1 + rd)(a_1 + 3d) \Rightarrow a_1^r + r^r d^r + 12a_1 d = a_1^r + 12d^r + 10a_1 d$$

$$\Rightarrow r^r d + r^r d = 0 \Rightarrow d = 0 \text{ or } d = \frac{a_1}{10}$$

$$a_1 + d, a_1 + 2d, a_1 + 3d \Rightarrow q = r \Rightarrow a_1 = a_1 q^q = \frac{1}{r} \times r^q = 121$$

$$(a_1 + 3d)^r = (a_1 + d)(a_1 + 3d) \Rightarrow a_1^r + 9d^r + 12a_1 d = a_1^r + 3d^r + 12a_1 d \Rightarrow d = a_1 \text{ or } d = 0$$

$$r a_1 q, r a_1 q^r, q a_1 q^r$$

$$r a_1 q^r - r a_1 q = a_1 q^r - r a_1 q^r \Rightarrow q^r(rq - r) = a_1 q^r(q^r - rq) \Rightarrow q^r - rq + r = 0$$

$$q^r - rq + r = (q-1)(q-r) = 0 \Rightarrow q = 1 \text{ or } r$$

$$k \frac{v}{f}, \dots \Rightarrow d = \frac{-1}{f} \Rightarrow \frac{1}{f} q_f = (1 + v \times (\frac{-1}{f})) = \frac{0}{f} \quad | \quad a_n = (1 + v \times (\frac{1}{f})) = \frac{1}{f} | a_{1v} = 1 + v \times (\frac{-1}{f}) = -1$$

$$\Rightarrow a_f + k, a_n + k, a_{1v} + k \longrightarrow \frac{0}{f} + k, \frac{1}{f} + k, -1 + k \Rightarrow (\frac{1}{f} + k)^r = (\frac{0}{f} + k)^r (-1 + k)^r$$

$$\Rightarrow \frac{1}{14} + k + \frac{k}{f} = k - \frac{0}{f} + \frac{k}{f} \Rightarrow \frac{k}{f} = \frac{-11}{14} \Rightarrow k = \frac{-11}{f} \quad \frac{(-11)}{f} - \frac{0}{f} = \frac{-11}{f} \Rightarrow q_f = \frac{0}{f}$$

$$a_1, a_f, q_{av} \quad , a_f + a_v = v^v$$

$$a_f - a_1 = \frac{a_v - a_f}{1} \Rightarrow a_1(q_f^v - 1) = \frac{a_1 q_f^v (q_f^v - 1)}{1} \Rightarrow 1 = \frac{q_f^v}{1} \Rightarrow q_f = 1$$

$$a_1 = t_1 \quad , a_f = t_f \quad , a_v = t_v$$

$$a_1 + a_f + q^v + a_1 q^v = a_1 (1 + q^v + q^v) \Rightarrow a_1 (1 + v + v^v) = v^v a_1 = v^v \Rightarrow a_1 = 1$$

$$a_1 = t_1 = 1 \quad t_f = a_f = v^v \times 1 = v \Rightarrow t_f = t_1 = \underline{v-1 \approx v}$$