

$$a + aq + aq^2 = 21$$

$$a \times aq \times aq^2 = 4r$$

$$a^3 q^3 = (aq)^3 = r^3 \Rightarrow aq = r \Rightarrow \frac{r}{q} + r + rq = 21$$

$$r + rq + rq^2 = 21q$$

$$rq^2 - 14q + r = 0$$

$$q^2 - 14q + 14 = 0$$

$$(q - 14)(q - 1) = 0$$

$$\rightarrow \frac{14}{r} = r \rightarrow \frac{1}{r} = 14$$

$$q = \frac{1}{r}$$

$$(rn)^r = (n^r - r)(n^r + r)$$

$$rn^r = n^r + rn^r - rn^r - 1 \quad rn^r = n^r + rn^r - 1 \quad rn^r = n^r - 1$$

$$n^r - rn^r - 1 = 0$$

$$(n^r - r)(n^r - 1) = 0$$

$$(n - r)(n + r)(n^r - 1) = 0$$

$$a_1 = 1 / q = \frac{1}{r}$$

$$\frac{n^r + r}{rn} \rightarrow \frac{rn}{n^r - r}$$

$$S_r = 1 \left(\frac{1 - (\frac{1}{r})^r}{1 - \frac{1}{r}} \right) = 14 - \frac{1}{r} = 14 \frac{r}{r}$$

$$1 + q + q^2 + q^3 + q^4 = \frac{121}{11} \xrightarrow{\times a} a + aq + aq^2 + aq^3 + aq^4 = \frac{121}{11} a$$

$$a_1 + ar + ar^2 + ar^3 + ar^4 = \frac{121}{11} \times 24r = 144r$$

$$\Rightarrow \frac{4r - 1}{r} = \frac{4r}{r} = 10, 14$$

$$1 + 14d = 1 + 1(10, 14) = 24, 14$$

$$14d + 1 = 20, 14$$

$$14d - 1 = 19, 14$$

$$\Rightarrow \frac{aq^4}{a} = \frac{4r}{1} \Rightarrow q^4 = 4r \Rightarrow q = \pm r$$

$$aq^3 = 1(\pm r)^3 = \pm 1$$

$$\frac{-9d}{r} - (-2r) = -23, 14 + 2r = 0, 14$$

$$-2r + (n-1)0, 14$$

$$\Rightarrow -2r + 0, 14(100) = -2r + 140 = 1$$

$$12n q^v = 1 \quad q^v = \frac{1}{12n}$$

$$\Rightarrow q = \frac{1}{r}$$

$$a+rd / a+rd / a+rd$$

④

$$(a+rd)^r = (a+rd)(a+rd)$$

$$rd^r + rad = 0$$

$$\underbrace{rd}_{\text{canceled}}(a+rd) = 0 \quad \boxed{a+rd=0} \quad \boxed{d = \frac{-a}{r}}$$

⑤

$$a+d / a+rd / a+rd$$

$$(a+rd)^r = (a+d)(a+rd) \Rightarrow rd^r = rad \Rightarrow rd = ra \Rightarrow a=d$$

$$\Rightarrow rd / rd / rd \Rightarrow r = \frac{rd}{rd} = \frac{rd}{rd} = r$$

$$\Rightarrow a_{10} = ar^9 = \frac{1}{r} r^9 = r^8 = 128$$

⑥

$$rag / rag^r / ag^r$$

$$r(rag^r) = rag + ag^r \Rightarrow rag^r = rag + ag^r$$

$$(ag^r) r = ag^r (r+g^r)$$

$$g^r - r + 1 = 0$$

$$\Leftarrow rg = r + g^r$$

$$(g-r)(g-1) = 0$$

$\neq 1$
Cikine

$$\boxed{g=r}$$

⑦

$$d = \frac{v}{r} - r = \frac{v}{r} - \frac{1}{r} = \frac{v-1}{r}$$

$$a=r \Rightarrow a_n = r + (n-1)\frac{1}{r}$$

$$a_r = r + \frac{1}{r}(r) = r + \frac{r}{r} = \frac{d}{r}$$

$$a_1 = r + \frac{1}{r}(1) = \frac{1}{r}$$

$$a_{12} = r + \frac{1}{r}(12) = -1$$

$$\frac{d}{r} + n / \frac{1}{r} + n / -1 + n$$

$$\left(\frac{1}{r} + n\right)^r = \left(\frac{d}{r} + n\right)(-1 + n) \Rightarrow n = \frac{-r}{r} \Rightarrow \frac{-14}{r} / \frac{-r}{r} / \frac{-18}{r}$$

$$r = \frac{\frac{-14}{r}}{\frac{-r}{r}} = \frac{\frac{-14}{r}}{\frac{-1}{r}} \Rightarrow \frac{d}{r}$$

$$a \quad | \quad aq^3 \quad | \quad aq^4$$

$$a \quad | \quad a+d \quad | \quad a+2d$$

$$a + a+d + a+2d = V^3$$

$$3a + 3d = V^3$$

$$V^3 a = V^3$$

$$3a + 3d = V^3$$

$$a = 1 \quad | \quad d = V$$

$$(aq^3)^3 = a \times aq^4$$

$$(a+d)^3 = a(a+2d) \Rightarrow d = Va$$

(10)