

$$a + aq^r = r\lambda$$

$$\Rightarrow \frac{a(1+q^r)}{aq(1+q)} = \frac{r\lambda}{r} = \frac{V}{r}$$

- 4

$$aq + aq^r = r\lambda$$

$$\frac{(1+q)(1+q^r-q)}{(1+q)} = \frac{V}{r} = r + rq^r - rq = V$$

$$rq^r - rq - r = 0$$

$$a + aq + aq^r = r\lambda$$

$$a \times aq \times aq^r = r\lambda$$

- 5

$$\frac{a}{r} + aq^r = 10$$

$$\sqrt[r]{a^r q^r} = \sqrt[r]{r\lambda}$$

$$a(1+q^r) = 10$$

$$aq = r$$

$$r, r, r, \dots$$

- 6

$$S_{10} = r \left(\frac{r^{10} - 1}{r - 1} \right) = r^{10} - 1$$

$$P_{10} = \sqrt{(a_1 \cdot a_n)^n} = \sqrt{(r \times r \times r^9)^{10}} = (r \times r^9)^{10}$$

$$\hookrightarrow a_{10} = r \times r^9$$

$$a \quad aq \quad aq^r \quad aq^r \quad aq^r \quad \dots$$

- 7

$$\underbrace{a - aq}_{-q} \quad \underbrace{aq - aq^r}_{-q} \quad \underbrace{aq^r - aq^r}_{-q} \quad \dots$$

20

$$a + a + d + a + r + \dots$$

10

$$na + d(1 + r + r^2 + \dots + r^{n-1}) \Rightarrow \frac{n(n+1)}{2} \Rightarrow \frac{rn}{2} a + d \frac{(n-1)n}{2}$$

21

$$\Rightarrow \frac{n}{2} (ra + (n-1)d)$$

25

$$S = a + aq + aq^r + \dots + aq^{n-1}$$

(-)

$$-qS = -aq - aq^r - \dots - aq^{n-1} + aq^n$$

$$S - qS = a - aq^n \Rightarrow S(1-q) = a(1-q^n) \Rightarrow S = a \left(\frac{1-q^n}{1-q} \right)$$

30

Arman

$$a_n = \frac{1}{r}, 1, r, \dots$$

$\underbrace{\quad}_{x \cdot r} \quad \underbrace{\quad}_{x \cdot r}$

$$a q^{n-1} = \frac{1}{r} \times r = r^1 \quad \text{الف:؟}$$

$$a q^{n-1} = \frac{1}{r} \times r = r^1 \quad \leftarrow \frac{a_{14}}{a_{13}} \quad \text{ب:}$$

$$a_1 = \frac{1}{r} \times r = r^1, \quad a_{10} = \frac{1}{r} \times r = r^1 \quad \text{ج:}$$

$$r^1 = r^1 \times r^1 \Rightarrow r^1 = r^2 = r = r^1$$

$$a q^{n-1} = 128 \quad \text{د:}$$

$$\frac{1}{r} r^{n-1} = 128 \quad r^{n-1} = 128 = 2^7 \quad n-1 = 7 \quad \boxed{n=8}$$

$$a q^7 = 12 \quad a q^9 = 94 \quad \frac{a q^9}{a q^7} = \frac{94}{12} = 8 = q^2 \Rightarrow q = 2$$

$$\Rightarrow q=2 \Rightarrow a \times 2^7 = 12 \quad \Rightarrow a = \frac{12}{128} = \frac{3}{32}$$

$$\frac{3}{32} \times 2^9 = 12 \times 2 = 24$$

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 2 \times 4 \times 8 \times 16 \times 32$$

$$\Rightarrow a_{10} = 2 \times 4 \times 8 \times 16 \times 32$$

$$\Rightarrow (a_1 \times a_{10}) = (a_2 \times a_9) = (2 \times 16) = 32$$

$$a, \sqrt{r}, r^b \Rightarrow (\sqrt{r})^r = r \times r^b \Rightarrow r^{\frac{r}{2}} = r^{b+1} \Rightarrow \frac{r}{2} = b+1$$

$$\frac{1+r}{r} = 2.5$$

$$(r) \quad (v) \quad (ii) \quad a q^r = 1-n \quad a q^v = n \quad a q^{10} = n+1$$

$$n^r = (1-n)(n+1) \quad n^r = 1 - n^r = 2n^r = 1 \quad n^r = \frac{1}{2} \Rightarrow n = \pm \frac{1}{\sqrt{r}}$$

$$n = \pm \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \pm \frac{1}{r}$$