

2.83  
②

$$a_1 \cdot a_n = a_1^2 q^{n-1}$$

$$a_{1+x} \cdot a_{n-x} = a_1 q^{x-1} \cdot a_1 q^{n-x-1} = a_1^2 q^{n-1}$$

$$a = u_1 + u_2 + \dots + u_n = \frac{u_1 (q^n - 1)}{q - 1}$$

(1)

כל  $\frac{1}{u_n} = \frac{u_{n-1}}{u_n} \cdot \frac{1}{q}$  (כלומר) נכפול את  $\frac{1}{u_i}$  ב- $q$

$$b = \frac{1}{u_1} + \frac{1}{u_2} + \dots + \frac{1}{u_n} = \frac{1}{u_1} \left( \left(\frac{1}{q}\right)^n - 1 \right) = \frac{1}{u_1} \left( \frac{1 - q^n}{q^n} \right) = \frac{q(1 - q^n)}{u_1 q^n (q - 1)}$$

$$u_1 \cdot u_n \cdot b = \frac{u_1 \cdot u_1 \cdot q^{n-1} \cdot q(1 - q^n)}{u_1 q^n (q - 1)} = \frac{u_1 (1 - q^n)}{q(q - 1)} = a$$

(2)

(1)  $\Rightarrow$   $u_1 \cdot u_n = \frac{a}{b}$

$$u_1 \cdot u_n = \frac{a}{b}$$

$$u_1 \cdot u_2 \cdot \dots \cdot u_n =$$

$$(u_1 \cdot u_n)^{n/2} = \left(\frac{a}{b}\right)^{n/2}$$

כלומר  $\frac{a}{b}$  הוא הממוצע  
הגאומטרי של  $u_1, u_2, \dots, u_n$