2.60
e2

$$\begin{cases} 2S_n = S \\ a_1 = \sqrt{2} \end{cases} \qquad \frac{2a_1(q^n-1)}{q-1} = \frac{a_1}{1-q} \to \boxed{q^n = \frac{1}{2}}$$

$$\prod_{i=1}^{n} a_i = a_1(a_1q)\cdots(a_1q^{n-1}) = a_1^n q^{1+2+\ldots+n-1} = a_1^n q^{\frac{n-1}{2}(1+n-1)}$$

$$= a_1^n q^{n\left(\frac{n-1}{2}\right)} = (\sqrt{2})^n \left(\frac{1}{2}\right)^{\frac{n-1}{2}} = 2^{\frac{1}{2}n} \cdot 2^{\frac{1-n}{2}} = 2^{\frac{1}{2}} = \sqrt{2}$$