

ב2 2.61

$$\begin{aligned} a_2 &= 6 \\ S &= \frac{a_1}{1-q} \\ a_1^2, a_2^2, \dots & \\ q^2 &= \frac{a_n^2}{a_{n-1}^2} = q^2 \\ S^2 &= \frac{a_1^2}{1-q^2} \\ \frac{a_1}{1-q} &= \frac{1}{8} \cdot \frac{a_1^2}{1-q^2} \\ \frac{8a_1}{1-q} &= \frac{a_1^2}{(1-q)(1+q)} \\ \boxed{8(1+q) = a_1} \end{aligned}$$

$$\begin{aligned} 6 = a_2 = a_1 q &= 8(1+q)q \\ 8q^2 + 8q - 6 &= 0 \\ 4q^2 + 4q - 3 &= 0 \rightarrow \begin{cases} q_1 = -\frac{6}{4} = -\frac{3}{2} & |q| < 1 \\ q_2 = \frac{3}{4} = \frac{1}{2} \end{cases} \end{aligned}$$