

Number:

Name:

Exercise 2 (deadline: May 12, 2026)

- 1) Show Eq. (35) by expressing the scattering amplitude $f_\ell(E)$ in terms of the phase shift $\delta_\ell(E)$.
- 2) Prove the following optical theorem:

$$\text{Im } f(E, \theta = 0) = \frac{p}{4\pi} \sigma(E).$$
