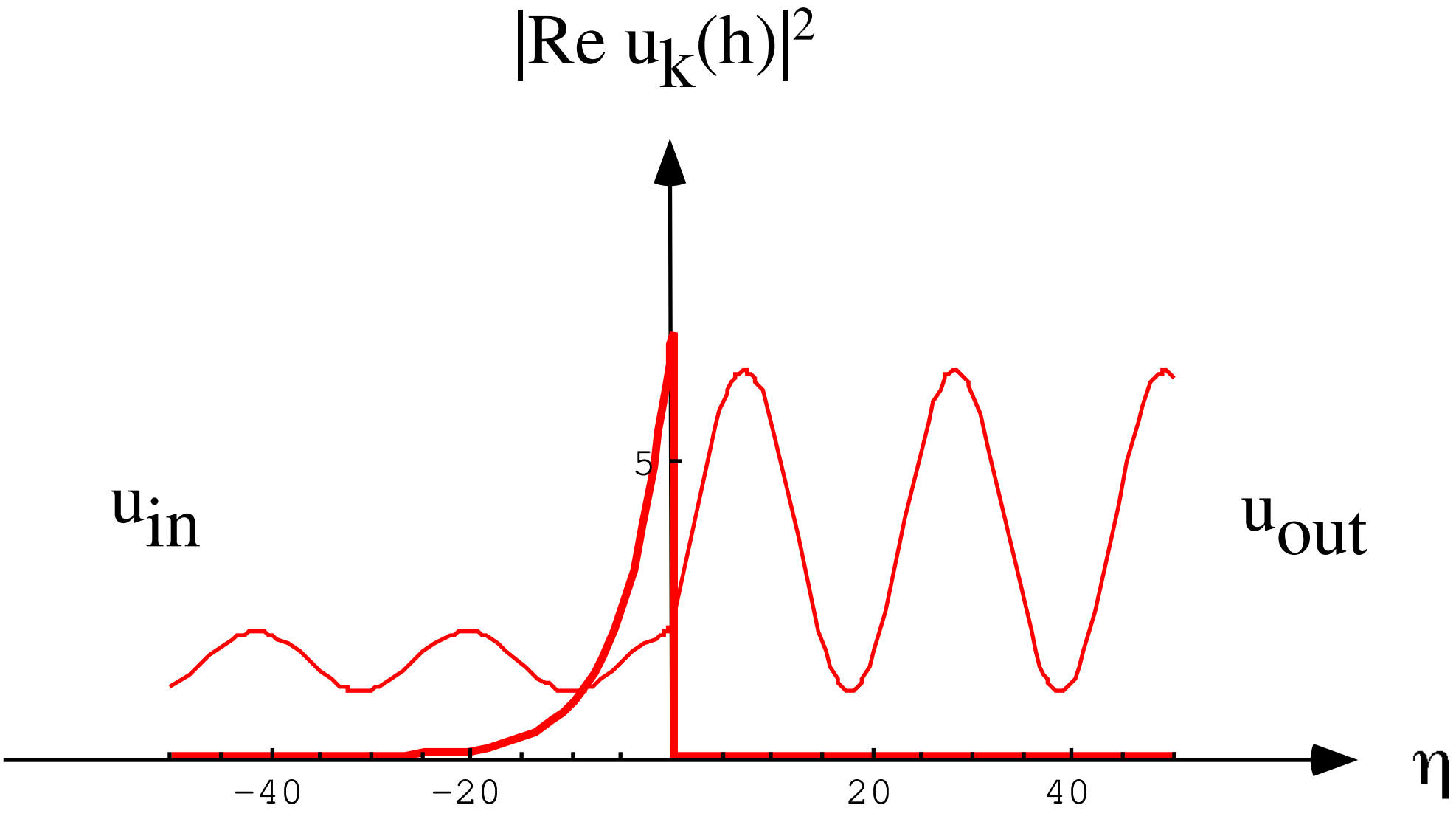

$$u_{in} = e^{-ik\eta}$$

$$u_{out} = c_+ e^{-ik\eta} + c_- e^{+ik\eta}$$