

PHYS 452 Quantum Mechanics II (Fall 2017)
Homework #5, due Friday Nov 24 by the end of the day

Scattering theory

1. Problem 11.6 in Griffiths
2. Consider S -wave scattering ($l = 0$) of a particle of mass m from a spherically symmetric attractive potential well:

$$V(r) = \begin{cases} -V_0, & r < R \\ 0, & r > R \end{cases} .$$

Find the phase shift δ_0 and the total cross section σ_{tot} .

3. Problem 11.20 in Griffiths