

PROBLEM SET 4– due Wed. 5-7

Physics 215C- Quantum Mechanics, SPRING 2008

1. Consider scattering from a hard sphere

$$\begin{aligned} V(r) &= 0 & r > a \\ V(r) &= \infty & r < a. \end{aligned}$$

- a. Find the phase shifts for all partial waves.
- b. Find the total cross section for low energies (ie for $ka \ll 1$).
- c. Find the total cross section for high energies (ie for $ka \gg 1$).