

1. Jackson 1.4; 1.6(a),(b),(c); 1.9 (only for 1.6a)
2. Jackson 1.16

Hint: Evaluate the initial and final energies as integrals over  $E^2$  with  $\mathbf{E} = -\nabla\phi$  where the initial potential is  $\phi_i$  and the final potential is  $\phi_i + \delta\phi$ .