From Griffiths: 2.22, 2.26, 2.32, 2.36, 2.45, 2.46, 2.52

1. A charge of $+Q$ is uniformly spread over a sphere of radius a centered at the origin. There is another charge of $-Q$ spread over a sphere of radius a a distance b away ($b > 2a$) on the x axis. Determine the work that must be done moving a charge q from the center of the second charge to the center of the first.

2. Two concentric conducting sphere with radii $a < b$ have net charges Q_a and Q_b, respectively. The inner sphere is grounded; that is the potential of that sphere is 0 and the potential is 0 at infinity. Find the charge Q_b in terms of Q_a.