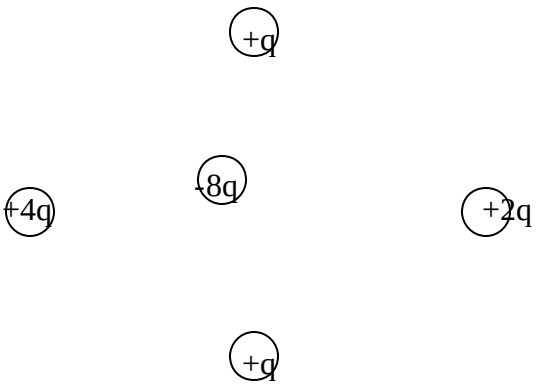
Today	**Ch 19** Electric Potential	**HW9**
Wednesday	**Ch 19** 2st 1/3rd Electric Potential	**HW10**

Ex. 1 Draw the field lines with appropriate direction and quantity between the charges.



18.1 The Electric Field Inside a Conductor: Shielding

- **What electric field does this distribution of charge produce?**
- **Inside the conductor**
- **Outside the conductor**

Chapter 19 Electric Potential Energy and the Electric Potential (Voltage)
Introduction

19.1 Potential Energy

- **Work – Energy Relation**
  - **Work**
  - **Kinetic Energy**
- **Conservative Force**
- **Potential Energy**
  - **Gravitational Potential Energy**
  - **Electrical Potential Energy**
  - **Example Background: Parallel Plate Capacitors.**

Example 2. Say we have one set up with the + plate 0.01 m in front of the - plate. They produce a uniform 10^6 N/C electric field between them. If an electron is dropped through the hole in the – plate.

A) Assuming these plates are stacked vertically, by how much would the system's *gravitational* potential energy change?

B) How much does the *electric* potential energy of the system change as the electron travels to the + plate?

C) Assuming that the electron had negligible speed to begin with, how fast is it moving when it goes out the hole in the + plate?

19.2 The Electric Potential Difference

19.2.1 Definition

- **Synonyms**
- **Lab tie-in**

HW 10

2. An electric force moves a charge ov $+1.80\times10^{-4}$C from point A to point B and performs 5.80×10^{-3}J of work on the charge. (a) What is the difference ($P.E._{electA} - P.E._{electB}$) between the electric potential energies of the charge at the two points? (b) Determine the (electric) potential difference ($V_A - V_B$) between the two points. (c) State which point is at the higher potential.

5. In a television picture tube, electrons strike the screen after being accelerated from rest through a potential difference of 25,00 V. Calculate the speed you'd expect the electron to have just before hitting the screen. (In actuality, the electron gets going so fast that the equations must be tweaked to properly handle the relativistic speed {near the speed of light}, but your 'non-relativistic' calculation will give the right ball-park).