Review Questions 6.3

1. Write the definition of the following terms in your own words. (a) electric potential, (b) potential difference, (c) volt, and (d) equipotential line/surface.
2. Write two units of electric field strength.
3. If the potential is constant in a certain region, what is the nature of the electric field at that region?
4. What would happen to its electrical potential energy (a) when an electron is released in a uniform electric field, and (b) when a proton is released in a uniform electric field?
5. How are electric field lines and equipotential lines drawn relative to each other?
6. What is the strength of the electric field between two parallel conducting plates separated by 1.0 cm and having a potential difference between them of 1.5V?
7. Two-point charges are located on the corners of a rectangle with a height oh 0.05 m and a width of 0.15 m. The first charge ($q_1 =- 5\mu C$) is located at the upper left-hand corner, while the second charge ($q_2 =+ 2\mu C$) is at the lower right-hand corner. (a) Determine the electric potential at the upper right-hand corner of the rectangle. (b) What is the potential difference for a point at the right-hand corner of the rectangle relative to the lower left-hand corner?

8. Two charges 3×10^{-8} C and -2×10^{-8} C are located 15 cm apart. At what point on the line joining the two charges is the electric potential zero? Take the potential at infinity to be zero.
9. What are the signs and magnitudes of a point charge that produces a potential of -2.0 V at a distance of 1.0 mm?
10. Two point charges 10pC and -2pC are separated by a distance of 1.0 . Find the potential mid-way between them.

This is homework 4. It is due on Monday, May 20th. Do this on your exercise books.