| Test 1 — Outline (Revised 1/20/20) | |
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| Course Information: Phys 2B | Instructor Name: John R. Walkup |

### Equations Provided

(I will include the list of equations in the next outline update.)

### All questions are multiple choice – be sure to bring a Scantron.

#### Conceptual questions

1. A charge will travel through an electric field. You will indicate that you know what happens to the potential energy, kinetic energy, and total energy of the electron as it does so.
2. Watch the video titled “Electrostatic Induction” on BlackBoard. Be prepared for a multiple-choice question. If you watch the video and understand it, you should be okay.
3. Watch the video titled “Inductive Charging using an Electroscope” on BlackBoard. If you watch the video and understand it, you should be okay.
4. I will provide a triboelectric series chart. After rubbing two materials together, you will tell me what happens to the net charge on each material according to the chart. See the image titled “Tribolelectric Series” on BlackBoard and read the accompanying explanation.
5. Understand the purpose of an electric field and how its value depend on the amount of charge and the distance between the charge and the point in space.
6. Know what happens to the energy of a charge as it travels through a constant electric field.
7. It is not safe to stand near a tree during a lightning storm, however it is relatively safe to be inside a car. Know why.
8. Problem 1 – 4 from Assignment “Basic Charge and Coulomb’s Law”
9. Problem 9 – 11 from Assignment “Basic Charge and Coulomb’s Law”
10. Problem 4 or 9 from Assignment “Coulomb’s Law and E Fields”
11. Problem 2, 3 or 12 from “Coulomb’s Law and E Fields”
12. Problem 3, 4, or 5 from “Potential and Potential Energy”
13. Wild card
14. Wild card

#### Computations

1. I will place two charges at a particular location in space. At another point in space, which we will call Point A, you will compute the net electric field (including direction) and potential.