Physics 200

Fall 2017

Vector Practice Problems

These are optional problems you can work to practice the operations we learned about vectors.

I will provide answers, and full written solutions later.

Hints: it may be best to sketch out the force table on paper and ensure your answers are logical. Does that look like it would work? Also note: the force tables are marked zero to 360 degrees, but an answer of, say negative 50 degrees is a fine answer, which I would accept, but you would need to add 360 degrees to this answer if you actually had the force table in front of you and needed to place the mass somewhere.

1. You place 345 grams of mass at 55° on the force table. To balance the table, what mass do you need to place at 180° and 270° degrees to balance the table?
2. You place 123 grams at 0° and 231 grams at 270°. You wish to balance the table with a single, third, mass. How much mass do you need? And where do you put it (meaning: at what angle).
3. You place 432 grams at 35° and 298 grams at 120° and you wish to balance the table with a single, third, mass. How much mass do you need to use? At what angle?

Brief note on vectors: we are building some skills with converting vectors from rectangular to polar and back, and adding vectors with these problems and labs. We will use these skills later, but I think you will find later in class it is somewhat easier than this lab.