

Wrapper for Physics 111 Homework #1

1. Below are several statements that reflect the goals of this assignment, i.e., what you should get out of completing the assignment. In particular, one of the goals is to give you practice in adding and subtracting vectors. The practice in this homework is one of the steps you need to take so that working with vectors becomes second nature to you. We want you to become very comfortable with a number of the mathematical skills like vector addition and subtraction, so that when you are faced with a physics problem, you can focus on the physics without getting bogged down in the math. Before you actually begin the rest of the assignment, rate how true each of the following statements is for you. Use a scale from 1 to 7, where 1 is “not at all true of me” and 7 is “very true of me”.
 - a. I can add and subtract vectors using the vector diagram method.
 - b. I can *automatically and without much effort* add and subtract vectors using the vector diagram method.
 - c. I know what the difference is between a scalar and a vector.
 - d. I can *easily and effortlessly* recognize scalars as distinct from vectors when I’m working on a physics problem.
 - e. I know what the difference is between a vector’s magnitude and its direction.
 - f. I can *easily and effortlessly* recognize and work with the difference between a vector’s magnitude and its direction when I’m working on a physics problem.

<Rest of assignment goes here>

2. Now that you have completed the assignment, rate how true each of the following statements is for you. Again, use a scale from 1 to 7, where 1 is “not at all true of me” and 7 is “very true of me”.
 - a. I can add and subtract vectors using the vector diagram method.
 - b. I can *automatically and without much effort* add and subtract vectors using the vector diagram method.
 - c. I know what the difference is between a scalar and a vector.
 - d. I can *easily and effortlessly* recognize scalars as distinct from vectors when I’m working on a physics problem.
 - e. I know what the difference is between a vector’s magnitude and its direction.
 - f. I can *easily and effortlessly* recognize and work with the difference between a vector’s magnitude and its direction when I’m working on a physics problem.

We have asked you to examine how you think your skills have changed by doing this homework. This is an important technique in learning – constantly self-assessing what progress you are making. If you feel you have made the progress you wanted, great; please write a single sentence to describe your progress. If you feel you have not quite achieved the progress you wanted from this assignment, that is ok, too; please write a sentence about what action(s) you might take that could help you achieve that level of progress.

Wrapper for Physics 111 Homework #3

1. We want you to try a similar exercise as you did on homework 1. We want you to self-assess where you think you are on the ideas exercised in this homework before you start the assignment and then, when you are done, to see if your opinion has changed. If you have made progress on the ideas and skills listed below by doing this home work, great. If not, what actions could you take to make more progress? If you are not sure, find someone on the course staff for help.

Below are several statements that reflect the goals of this assignment, i.e., what you should get out of completing the assignment. Before you actually begin the assignment, rate how true each of the following statements is for you. Use a scale from 1 to 7, where 1 is “not at all true of me” and 7 is “very true of me”.

- a. I can accurately identify all the relevant forces that are present in a “momentum” problem (without missing any and without including any extra ones).
- b. I can identify all the relevant forces equally well when the problem is described as a simple block diagram, as a more complex diagram, and as a written statement. (If I had to say one format was more challenging to me now, it would be _____. [please fill in the blank])
- c. Once all the forces in a problem are properly identified, I can set up the equation for the change in momentum in vector form.
- d. Once I have the equation in vector form, I can accurately re-write it in components.
- e. I am able to recognize that for the same system (e.g. a girl on a swing) in a different state (at the top or bottom of her swing), the forces, momenta, and changes in momenta may have different magnitudes and directions.

<Rest of assignment goes here>

3. Now that you have completed the assignment, rate how true each of the following statements is for you. Again, use a scale from 1 to 7, where 1 is “not at all true of me” and 7 is “very true of me”.
- a. I can accurately identify all the relevant forces that are present in a “momentum” problem (without missing any and without including any extra ones).
- b. I can identify all the relevant forces equally well when the problem is described as a simple block diagram, as a more complex diagram, and as a written statement. (If I had to say one format was more challenging to me now, it would be _____. [please fill in the blank])
- c. Once all the forces in a problem are properly identified, I can set up the equation for the change in momentum, in vector form.
- d. Once I have the equation in vector form, I can accurately re-write it in components.
- e. I am able to recognize that for the same system (e.g., a girl on a swing) in a different state (at the top or bottom of her swing), the forces, momenta, and changes in momenta may have different magnitudes and directions.