Chapters 4-5 Test description

The Chapter 4 and 5 Test will be on Wednesday Oct. 10 at 6:30 to 7:45pm. Please read the instructions for tests carefully so you are well prepared. Please note that labs will occur as usual that day.

A "sample test" will be posted in Files/Tests on Canvas. The sample test does NOT necessarily include all of the material you need to know; it is for practice taking a test in a test setting. Anything covered in the homeworks, lectures, or in-class activities is fair game. The test will consist of a mixture of calculation problems (like "standard problems"), conceptual problems, and miscellaneous problems like problems involving graphing.

This test covers chapters 4 and 5 and the associated homeworks. You should know:

- Newton's 3 laws of motion and how they apply to various situations. You must know which law is which.
- How to draw a free body diagram.
- How to solve Newton's second law problems including:
    - Problems involving friction.
    - Problems involving tension.
    - Problems involving multiple interacting objects.
    - Problems involving taking vector components.
    - Problems involving using tilted coordinate aces.
    - Problems involving circular motion.

- The meaning of apparent weight.

You should also know the material from the previous test:

- The meanings of the metric prefixes n, μ, m, c, k, and M.
- The definitions and relationships between position, displacement, distance, velocity, speed, and acceleration in 1D.
- How to calculate instantaneous and average velocities off an x vs. t graph and accelerations off a v vs. t graph.
- How x vs. t and v vs. t graphs correspond to actual motion, and what graphs of constant acceleration and constant velocity motion look like.
- How to solve 1D kinematics problems, including using calculus techniques and problems with multiple objects and/or time intervals.
- How to add and subtract vectors graphically.
- How to find the components of vectors.
- How to use vector components to find the magnitude and direction of vectors.
- How to solve 2D kinematics problems including, but not restricted to, projectile motion.
- Radial and tangential acceleration, and how they affect objects in motion.
- The concepts related to describing circular motion