

## PHYSICS 113 – Recitation Assignment 5

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Name

### Recitation Assignment # 5

Oct. 21, 2009

Today's recitation assignment is relatively simple (mainly so that you'll have plenty of time to study for your midterm over the next week). You will model a rocketship trip to  $\alpha$ -Centauri (the nearest star to our own), about 4.3 light years from earth. Remember, a light year is just the distance that light travels in one year.

For this assignment:

1. Make the spaceship have a mass of 1000kg, and apply a constant force of 9800N. To the inhabitants of the ship, this would feel like earth normal gravity pulling them toward the "back" of the ship.
2. Halfway through the trip, reverse thrusters and decelerate with 9800N. This will allow you to stop when you reach  $\alpha$ -Centauri.
3. You will get a maximum score of 90% on this if you model the ship as a box. Creativity in modeling your ship counts.
4. Besides the graphics, your program should compute how long, in years, such a trip takes. The time should be as seen from the earth.

**E.C.** By Friday's lecture, we will have seen that time runs slow for bodies in motion. For extra credit (if you wish), please compute how long the entire trip takes *according to the pilot in the ship*.

As always, please make sure you test it and email your final program to Coleman at [ckraw@physics.drexel.edu](mailto:ckraw@physics.drexel.edu). The subject line should be "Physics 113 yourname prog5.py"