

Oberlin College Physics 212, Fall 2021

Assignment 3:

Sample Exam in Relativity

Wednesday, 20 October

Take-home exam instead of problems this week. The exam covers relativity and is due at 11:00 AM on Wednesday, 27 October.

While taking the exam you may consult any written or on-line materials including your notes. I recommend but don't require that you write in your own words a one-page summary of the most important and most difficult-to-remember equations, principles, and ideas. You may not collaborate with a person, either directly or electronically.

Reading: We move from relativity to the next major topic of this course: classical waves. You can read about waves in my handout *Notes on Waves*. If you want a different perspective, read Halliday, Resnick and Walker, *Fundamentals of Physics*, tenth edition, chapters 35 (Interference) and 36 (Diffraction). Deemphasize sections 35-1, 35-5, 36-3, 36-4, 36-6, and 36-7.

Sample exam: (The exam will have four problems, but I just couldn't resist giving you five sample problems. These problems are somewhat harder than the exam problems will be.) These problems are from the "Notes on Relativistic Dynamics".

1. Notes problem 5.5: *X-rays*
2. Notes problem 5.7: *Two photons*
3. Notes problem 6.6: *Photon absorption*
4. Notes problem 6.7: *Nuclear decay*
5. Notes problem 6.9: *Nuclear fission, I*