

Intermediate Dynamics: Homework 6

Due: 30 September 2013

- 1 Helliwell, *Special Relativity*, Problem 4-2, page 48.
- 2 Helliwell, *Special Relativity*, Problem 4-6, page 49.
- 3 Helliwell, *Special Relativity*, Problem 4-7a) b), page 49.
- 4 Helliwell, *Special Relativity*, Problem 4-10, page 49.
- 5 Helliwell, *Special Relativity*, Problem 5-4, page 60.
- 6 Helliwell, *Special Relativity*, Problem 5-7, page 61.
- 7 Helliwell, *Special Relativity*, Problem 5-10, page 61.
- 8 Helliwell, *Special Relativity*, Problem 6-2, page 76. First consider the situation from the rest frame of the Sun and Sirius. The light pulses from the supernovae arrive simultaneously. Determine whether in this frame they were produced simultaneously. Now consider the situation from the rocket frame. The pulses again arrive simultaneously. In this frame, were they produced simultaneously? If not which was produced later?
- 9 Helliwell, *Special Relativity*, Problem 6-14, page 78. This requires careful description of the four key events. Beyond that it only requires time dilation and ordinary kinematics.
- 10 Helliwell, *Special Relativity*, Problem 6-15, page 79. This requires careful description of the four key events. Beyond that it only requires time dilation and ordinary kinematics.