NAME & ID

UNIVERSITY OF ALABAMA
Department of Physics and Astronomy

PH 102 / LeClair Summer II 2010

Quiz 1: Relativity

Instructions:

1. Answer all questions below. They have equal weight.
2. Express your answer with the appropriate units and significant digits
3. Show your work for full credit.

1. The period of a pendulum is measured to be $3.00\,\mathrm{s}$ in its own reference frame. What is the period as measured by an observer moving at a speed of $0.950c$ with respect to the pendulum?

2. If you are moving in a spaceship at high speed relative to the earth, would you notice a difference in your pulse rate? In the pulse rate of the people back on earth? Explain, briefly.

3. A stick of length $L = 1\,\mathrm{m}$ is at rest on one system and is oriented with its length along the x axis. What is the apparent length of this stick as viewed by an observer moving at a speed v with respect to the first system?