Paper Submission No. 07 (Fall 2018)

PHYS 203A: College Physics

Due date: Thursday, 2018 Nov 1, 12.35pm, in class

(Name) (Signature)

Instructions

1. Your submission should include only this page. Other forms of submissions will not be accepted. Please print this page, and write your solution on the back side.
2. Show your thought process in detail and organize it clearly.
3. Make sure your answer has the correct units and the right number of significant digits.

Question

A car of mass $m_1 = 2000.0\,\text{kg}$ is moving at speed $v_{1i} = 25.0\,\text{m/s}$ towards East. A truck of mass $m_2 = 6000.0\,\text{kg}$ is moving at speed $v_{2i} = 10.0\,\text{m/s}$ towards North. They collide at an intersection and get entangled (complete inelastic collision).

1. What is the magnitude and direction of the final velocity of the entangled automobiles?
2. How much kinetic energy is lost in the collision. That is, calculate the change in the kinetic energy of the system.