PHYS 101

Homework # 4
DUE DATE: October 13, 2009

You have to use problem solving methods (analysis, solution and checks). Please do not submit copycat answers from the solutions book, internet or some other solution you have in hand. You should at least show your understanding of the problem. Otherwise, this will be considered as cheating.

1) Imagine a car involved in a head-on crash. The driver, whose mass is m, is to be brought uniformly to rest within the passenger compartment by compressing an inflated air bag through the distance s_c. Write an expression for average force exerted on the air bag in terms of m, vi, and s_c. Compute the average force for a 115 km/hr collision, where the drivers mass is 82 kg, and the allowed stopping distance of the air bag is 33 cm. Assume the car deforms only negligibly.

2) Discussion Questions 4.1, 4.12, 4.19   in the text. Chapter 4. Page 130-131

3) Problem 4-30   in the text. Chapter 4.

4) Problem 4-39   in the text. Chapter 4.

5) Problem 4-56   in the text. Chapter 4.