PHY 140Y – FOUNDATIONS OF PHYSICS
1999-2000
Problem Set #2

HANDED OUT: Friday, October 8, 1999 (in class).

DUE: **1:00 PM, Thursday, October 21, 1999 (in class).**
Late penalty = 5 marks/day (which also applies to weekend days!) until 1:00 PM, Monday, October 25, after which it will not be accepted (as solutions will then be available in tutorials and on the WWW).

NOTES: Answer all questions. Total marks = 100.
50% will be awarded for making a reasonable attempt at all questions.
50% will be awarded for the answers to a selected subset of the questions.
Marks will given for workings and units, as well as for final answers.

QUESTIONS:
(from *Physics with Modern Physics*, Third Edition, by Wolfson and Pasachoff)

1. Chapter 3, Problem 48, Page 65

2. Chapter 3, Problem 68, Page 66

3. Chapter 4, Problem 54, Page 89

4. Chapter 4, Problem 80, Page 91
Hint: For a curve in 2-D, y = f(x), the radius of curvature is defined as $R = \pm \frac{\left[1 + (dy/dx)^2\right]^{3/2}}{(d^2y/dx^2)}$ *, where the positive (negative) sign is used if the arc length increases in the positive (negative) x direction. Check this in a calculus textbook.*

5. Chapter 4, Problem 82, Page 91

6. Chapter 5, Problem 6, Page 117

7. Chapter 5, Problem 38, Page 118

8. Chapter 5, Problem 64, Page 120

9. Chapter 6, Problem 18, Page 157

10. Chapter 6, Problem 38, Page 159