Homework for Week 8  
May 19-May 23, 2008

The textbook exercises listed here should be completed before class begins; students will share solutions to these exercises at the beginning of class. You should be prepared to share a solution to any one of these.

Before Class on Monday, May 19, read Section 9.7 and work the following exercises:  
Section 9.7, # 5, 9, 15, 23

Before Class on Tuesday, May 20, read Section 10.1 and work the following exercises:  
Section 10.1, # 1, 3, 5, 7, 33

Before Class on Wednesday, May 21, work the following exercises:  
Section 10.2, # 3, 5, 29

Before Class on Thursday, May 22, finish reading Section 10.2 and work the following exercises:  
Section 10.2, # 15, 19, 25

Additional Practice Problems

Practice as many of these problems as you can. You may use your solutions as notes during the quiz on Tuesday, June 3.  
Section 9.7, # 3, 7, 11, 13, 17, 19, 21  
Section 10.1, # 9, 13, 15, 23, 37  
Section 10.2, # 7, 9, 11, 21, 31, 33

There are exactly two great inventions of the human race: language and mathematics.  
- K. Kissel

More on back.
Written Homework

Your carefully written solutions to these questions are due at the beginning of class on Tuesday, May 27.

1 The figure below shows an ellipse in the plane \( x + y + \frac{1}{2}z = 5 \) and the “shadow” of the ellipse on the \( xy \)-plane – a circle of radius 2, centered at the origin. Find a parametric representation for the ellipse. (Hint: Parametrize \( x \) and \( y \) first.)

2 The velocity of an object at time \( t \) is

\[
\vec{v}(t) = \langle 2, t, e^{-t} \rangle.
\]

The object begins at the point \((1, -1, 0)\) when \( t = 0 \).

(a) Find the acceleration of the object at time \( t = 1 \).

(b) Find the position of the object at time \( t = 2 \).

(c) Find an equation for the tangent line to object’s path at the point where \( t = 1 \).

3 The cartesian coordinates of a point are \((1, -1, \sqrt{2})\). Find (a) the cylindrical coordinates of the point and (b) the spherical coordinates of the point.