MATH 448/548 - Numerical Analysis

Homework assignment 2
Date assigned: October 26, 2009
Due date: **November 10, 2009**

- Include a cover page and a problem sheet
- Include the printout of your program(s) for completeness

PROBLEMS:

1. Prove that $||x||_2 = (\sum x^2)^{1/2}$ is the norm.
   (Hint: use Cauchy-Schwarz inequality:$||x + y|| \leq ||x||||y||$)

2. Solve

$$\begin{array}{cccccc} 5x_1 & -x_2 & & & = 2, \\ 2x_1 & +4.6x_2 & -x_3 & & = 3.3, \\ & +2x_2 & +3.6x_3 & -08.x_4 & = 2.6 \\ & & 3x_3 & +4.4x_4 & = 7.2 \end{array} \tag{1}$$

   using Thomas algorithm.