1. Let $I = \int_0^1 x \sin(x^2)\, dx$

   (a) Calculate $L_4$ by hand.
   Does this over-estimate or under-estimate $I$?

   (b) Write $L_{10}$ and $L_{50}$ using sigma notation.

   (c) Use Maple to draw $L_{10}$ and $R_{10}$
   (Use the leftbox() and rightbox() commands)

   (d) Use Maple to calculate $L_{10}$ and $R_{10}$
   (Use the leftsum() and rightsum() commands)
   How does $I$ compare to $L_{10}$ and $R_{10}$?

   (e) Find the exact value of $I$ by using $u$-substitution.
   Does this make sense?

2. Approximate $\int_0^{1.5} \cos(x^2)\, dx$ within .002 of its actual value.

   **Hint:** Look at the graph of $\cos(x^2)$, and think about some of the ideas you had in the last problem.