Math 3890, Machine Problem 11: Due Tu., 4/6/21

1) Write a function `[c,M] = scatrbf(x,y,z,eps,rbf)` that finds the coefficients of a radial basis function that interpolates the values in the vector `z` at the points in `(x,y)`. The input should include the value `eps` and an anonymous function `rbf` giving the radial basic function. The output should include the matrix `M` that was solved to get the coefficients.

2) Write a script to test your function. It should
   a) call `readxy` to read the vectors `x, y`.
   b) set z = f(x,y), where f is Franke's funtion
   c) prompt for `eps` and run `scatrbf` with the Guassian radial basic function in (6.11) of the book.
   d) compute the difference between the RBF interpolant and f on a 71×71 grid over the unit square.
   e) use these values to plot the interpolant and to compute max and RMS errors.
   f) print the condition number of `M` and the errors.

3) Run your script with the file `gridpts.81` and `eps = 1` and `eps = 4`. Turn in the plots and the prints.

(4) Repeat with the file `gridpts.289`.

5) Write a second script to create a table for the sequence of values `eps = 1,...,7`. Read `x,y` from `type2.81`.