CHE 205
Homework Set 1
Due: Sept 3, 2015

These problems all involve typing expressions in the MATLAB command window. To complete this homework assignment, turn in a text (or Word, or PDF) file containing the expression that you type to respond to each problem.

1. Find an **efficient** way to generate the following matrix:

```
mat =
     7    8    9   10
    12   10    8    6
```

   Give expressions that, for the matrix *mat*,
   a. Refer to the scalar value 6 using subscript notation.
   b. Refer to the entire second row.
   c. Refer to the first two columns.

2. Create a vector *x* that consists of 20 equally spaced values from -π to π. Create a 20-element *y* vector in which every element is the sine of the corresponding element in *x*.

3. Create a *4 x 2* matrix of all zeros and store it in a variable. Then, replace the second row in the matrix with a vector consisting of a 3 and a 6.

4. Using the colon operator, create the following row vectors:

```
a.  3    4    5    6
b.  1.0000    1.5000    2.0000    2.5000    3.0000
c.  5    4    3    2
```

5. Use the **`help`** function to learn about the function **`rand`**. Create a *3 x 5* matrix of random real numbers. Delete the third row.

6. Create two *3 x 3* matrices of random real numbers. Create a third matrix in which each element is the product of the corresponding elements in these two matrices. Create a fourth matrix that is the product of matrix multiplication of the first two matrices.

7. Create four 4-element vectors of random real numbers in the range of 1 to 100. Concatenate these vectors together to form a *4 x 4* matrix. Multiply this matrix by itself.