**Math 302: Problem Set 1**

Due: September 10, 2009

Type the problem and under copy and paste your Matlab code with results.

1. Solve the following problems in the Command Window:
   (a) (5 points) $\frac{35.7\times5-3^5}{9+2^3}$
   (b) (5 points) $\cos(5\pi/6)+\tan(\pi)$
   (c) (5 points) $\frac{(3+\pi)^3}{(2-pi)^2}$
2. Define $x = 3.42$ and evaluate
   (a) (5 points) $x^2 + 25.3x - 2$
   (b) (5 points) $\frac{\sqrt{7x^2}}{e^{2x}}$
   (c) (5 points) $\frac{(\sqrt{x}+2)^3}{e^{3x(x-2)}}$
3. (5 points each for defining table and chair) Assume that the cost of a table is \$3.50 and the cost of a chair is \$2.00. Create appropriate variables and calculate the following:
   (a) (5 points) What is the cost of 1 table and 4 chairs?
   (b) (5 points) What is the cost of the above with 5% sales tax?
4. (5 points) Create a row vector that has the elements
$$23,\ e,\ \sqrt{2},\ \cos(\pi/3),\ 19$$
5. (5 points) Create a column vector that has the elements
$$25,\ e^{-1},\ \sqrt{5},\ \sin(\pi/2),\ 7$$
6. (5 points) Create a row vector with 20 equally spaced elements in which the first element is 5 and the last element is 25.
7. (20 points) Create a vector called `Afirst` that has 16 elements with which the first element is 4, the increment is 3, and the last element is 49. Then, using the colon symbol create a new vector called `Asecond` that has eight elements. The first four elements are the first four elements of `Afirst` and the last four elements are the last four elements of `Afirst`.
8. (5 points for creating A) Create the matrix
$$A = \begin{pmatrix} 1 & 3 & 2 & 4 \\ 2 & 1 & 9 & 3 \\ 4 & 2 & 3 & 1 \\ 5 & 5 & 6 & 3 \end{pmatrix}$$
   (a) (5 points) Create a matrix $B$ that is the same as A but rows 2 and 4 are exchanged using the colon notation.
   (b) (5 points) Create a matrix $C$ that is the same as A but columns 2 and 4 are exchanged using the colon notation.