Take Home Quiz 1
Due: January 23, 2015

Print off this sheet. For the following story problem, answer questions 1-6 below in the spaces provided.

It takes a barge 8 hours to travel 24 miles upstream and 8 hours to travel 88 miles downstream. Let x be the average speed of the barge in still water, and let y be the speed of the current.

1. Write out the 2x2 linear system of equations with respect to x and y.

2. Find x and y. SHOW YOUR WORK!

3. Write out the matrix equation, $A\mathbf{x} = \mathbf{b}$, for this linear system of equations. Carefully identify A, $\mathbf{x}$ and $\mathbf{b}$.

4. Draw the “row picture” for this system of equations.

5. Draw the “column picture” for this system of equations.

6. Write the vector on the RHS, **b,** as a linear combination of the columns of the coefficient matrix, **A**.