Directions: Answer all the following questions. Try to phrase your answers in complete sentences so the reader has a narrative instead of just short, clipped phrases or just mathematics symbols. No credit will be given for illegible or disorganized answers.

You will need to review pages 45-51 for these problems. This is all about inverses and transpose of matrices. Try to work up your own questions as you read through the material.

Work problems 1, 2, 3, 4, 6, 9, 25 (seems important!), 26, 30, and 49 on pages 52-56.

Puzzler:
I have 12 billiard balls that look exactly alike but only one of them is slightly heavier (or lighter, I forget which) than the other eleven. I also have a simple pan balance that can be used to determine if two items of unequal weight are placed on either side of the balance as the heavier side goes down and the lighter side goes up. Placing some billiard balls in each pan of the balance and checking to see if they weigh the same we will count as one weighing. The question: using only three weighing, how do I determine which of the billiard balls is different and whether it is heavier or lighter?

Here is an applet using coins to play with to get the idea.

http://nlvm.usu.edu/en/nav/frames_asid_139_g_3_t_2.html