COM1370 Spring 2003 Quiz #1 - Prof. Futrelle

THIS IS VERSION A

Wednesday 9 April - Closed book/notes

The students to your left and right should have Version B. The two versions differ in details, but are otherwise equivalent in difficulty. Please take your copy of the quiz with you when done. Do not hand it in and do not write your answers on it. Write your answers on the answer sheet. The quiz consists of a single eight part question.

On the answer sheet provided, *print* the following information:

1. Your name
2. Your ID number
3. This course, COM1370
4. The date: Wednesday, April 9, 2003
5. Your quiz version, A
6. Then put your answers and all scratch work on the rest of the sheet, *not* on this question sheet.

The Question:

a. Draw a line AB with coordinates A = (10,10), B = (10,20).
b. Write out a 3x3 translation matrix T with d_x = -10, d_y = 0.
c. Write out a 3x3 rotation matrix R for $\theta = +\pi$.
d. Write down the coordinates A' and B' that you'd expect if you applied T to the line AB. (Don't do the matrix multiplication.) Draw where you expect the new A'B' line to be.
e. Now transform both A and B using the matrix T in 3x3 form. Do you get the same answer as in part d? If not, try to get the your two answers into agreement by making the necessary changes.
f. Starting with the resulting points A' and B', apply the matrix R to get a new line A"B". Explain why the result makes sense to you, or fix it if it doesn't. Draw the resulting line A"B".
g. Finally, multiply the two matrices T and R together in the correct order to correspond to the steps above, obtaining a composite matrix C.
h. Apply C to AB and show that this results in A"B".