ASSIGNMENT #2: DUE FRIDAY, SEPTEMBER 26

M 374G: Problems 3.1 (parts 1 and 2 only), 3.2, and the additional problem below.

M 384G/CAM384G: Problems 2.3, 3.1 (all parts), 3.2, and the additional problem below.
Please note:

1. In problem 2.3, be sure to read instructions carefully. You may *not* use equations 2.3 or 2.4, since the purpose of the exercise is to verify the latter formula empirically in this case.
2. Part 3 of Problem 3.1 requires some careful thinking.

Additional problem:

The joint probability density function f(x,y) (you may prefer to call it the joint probability mass function, since both random variables are discrete) of the two discrete random variables X and Y is given in the following table:

		X			
		1	2	3	4
	1	.10	.05	.02	.02
	2	.05	.20	.05	.02
Y	3	.02	.05	.20	.04
	4	.02	.02	.04	.10

(So, for example, f(3,2) = .05)

a. Find the marginal probability density functions (marginal probability mass functions, if you prefer) of X and Y. Be sure to explain what you are doing. Does your result help explain why the marginal distributions are called marginal? How is the symmetry of the table reflected in your answers?

b. Find the conditional probability density (mass) function f(y|x = 2) of Y given X = 2. Be sure to explain what you are doing.