

### Math 313-01, Homework for Test # 3

I. Homework for Quizzes # 11, #12, # 13, # 14, # 15

II. Homework on Chapter 9

Let  $X$  and  $Y$  have joint PDF  $f_{X,Y}(x,y) = \frac{3}{2}x^2 + 2y^3$  for  $0 < x < 1$  and  $0 < y < 1$

1. Find  $E(Y|X)$
2. Find  $E(E(Y|X))$
3. Show why Adam's Law holds in this case
4. Find  $\text{Var}(Y|X)$
5. Find  $\text{Var}(E(Y|X))$
6. Find  $E(\text{Var}(Y|X))$
7. Show why Eve's Law holds in this case