

PART I CONTINUED

- iii. Determine the marginal distributions of X and Y using part i

X	$P[X=x]$		y	$P[Y=y]$
		Totals		

- iv. Compute the *conditional probability mass function of X given that $Y=y$* , $f_{X|Y=y}[x]$, for integer $y=1,2,3$. **I strongly suggest doing this by formula first so you can name these conditional distributions.**

x	$P[X=x Y=1]$	x	$P[X=x Y=2]$	x	$P[X=x Y=3]$
0					
1					
2					
3					
total					

- v. Compute the three conditional mean $E[X | Y = y]$ for $y=1,2,3$ and the conditional variance $\text{VAR}[X | Y = y]$ of X given that $Y = y$, for $y=1,2,3$. Show your work and put results in the table below. **This requires hardly any computation if you named these conditional distributions in part iii.**

y	$E[X Y=1]$	$\text{VAR}[X Y=1]$	$E[X Y=2]$	$\text{VAR}[X Y=2]$	$E[X Y=3]$	$\text{VAR}[X Y=3]$
1						
2						
3						