Office hours & Cats

$f_{X,Y}(x,y)$	$y=0$	1
$x=0$	0.1	0.35
1	0.05	0.05
2	0.10	0.35

Need $E[X,Y]$, $E[X]$ $E[Y]$

$$f_X(x) = \begin{cases} 0.45 & x=0 \\ 0.1 & x=1 \\ 0.45 & x=2 \end{cases}$$

$$E[X] = 0\times 0.45 + 1\times 0.1 + 2\times 0.45 = 1$$

$$f_Y(y) = \begin{cases} 0.25 & y=0 \\ 0.75 & y=1 \end{cases}$$

$$E[Y] = 0\times 0.25 + 1\times 0.75 = 0.75$$

$$E[X\cdot Y] = 0\cdot 0\cdot 0.1 + 0\cdot 1\cdot 0.5 + 0\cdot 2\cdot 0.1 + 1\cdot 0\cdot 0.35 + 1\cdot 1\cdot 0.05 + 1\cdot 2\cdot 0.35$$

$$= 0.75$$

$$Cov(X,Y) = 0.75 - 0.75 = 0$$