

Exercise-1.6: We want to show $\text{cov}[X, Y]=0$ if X and Y are independent. Recall that if X and Y are independent, $E_{x,y}[XY] = E[X]E[Y]$

$$\text{We know: } \text{cov}[X, Y] = E_{x,y}[XY] - E[X]E[Y]$$

Because X and Y are independent equation becomes

$$E[X]E[Y] - E[X]E[Y] = 0$$