

120. Suppose that the number of customers visiting a bank in a given business day is  $N \sim \text{Poisson}(\lambda)$ , where  $\lambda > 0$ . Each customer will withdraw between \$100 and \$500 with probability  $p$ , independently of the number of customers who visit the bank. Let  $X$  be the number of customers who withdraw between \$100 and \$500. On a randomly selected business day
- (a) What is the expected number of customers who will withdraw between \$100 and \$500?
  - (b) What is the variance of the number of customers who will withdraw between \$100 and \$500?