

**Note: To Get points, you should provide detailed expressions for each question.**

- 4. (20 points)** A store, which is open for 6 hours every day, gives a gift card to the (exactly) 10th customer of every day. The store has observed that customers show up at a rate of 1 every 30 minutes in accordance with a Poisson process. What is the probability the 10th customer of the day shows up in the second half of the day?