

# Math 1124

## Homework #7

Due Friday November 16th

1. You are the cashier at the Math Department Gift Shop. Since it opened ten years ago, 85% of all customers have paid with credit cards and the rest have paid with cash.
  - a. During a slow time in the morning, there are 3 customers in line. Find the probability that:
    - i. The first two customers pay with cash and the third pays with credit card.
    - i. Exactly 2 of them pay cash.
    - ii. At least one of them pays with a credit card.
  - b. It is now the noon rush and there are 20 customers in line. Find the probability that:
    - i. The first seven customers pay with cash and the last 13 pay with credit card.
    - i. Exactly 7 of them pay with cash.
    - ii. At least one of them pays with a credit card.
  
2. Predict the probabilities of the following events.
  - a. Drawing one card out of a 52-card deck and obtaining a Club.
  - b. Drawing 6 cards out of a 52-card deck (without replacement) and none of them are clubs.
  - c. Drawing 6 cards out of a 52-card deck (without replacement) and at least one of them is a club.
  - d. Drawing 6 cards out of a 52-card deck (without replacement) and all of them are clubs.
  - e. Drawing 6 cards out of a 52-card deck (without replacement) and obtaining all cards of the same suit.
  - f. Drawing 6 cards out of a 52-card deck (without replacement) and obtaining the following in order: a heart, a club, a club, a heart, a club, and a club.
  - g. Drawing 6 cards out of a 52-card deck (without replacement) and obtaining 4 clubs and 2 hearts (in any order).
  - h. Drawing 6 cards out of a 52-card deck (without replacement) and obtaining 4 cards of the same suit and 2 cards of a different suit (in any order).
  
3. Do #17 in 16.4 of the textbook (Pretty Flower)