

Quick Hit 8

For each of the following situations,

- (a) describe whether drawing is done with or without replacement, and whether order matters or not.
- (b) (if applicable) count the number of possible outcomes.

1. You are creating a password for your computer, consisting of 8 alphanumeric characters.

(a) *w/ replacement*  
*order matters*

(b)  $36^8 = 2.8 \cdot 10^{12}$

2. You are selecting three scoops of ice cream to be put into a bowl.

(a) *w/ replacement*  
*order doesn't matter*

3. You are dealt a hand of five cards from a standard deck of cards (recall: 52 total cards, each card has a suit and a denomination—there are 4 suits and 13 denominations).

(a) *w/o replacement*  
*order doesn't matter*

(b)  ${}_{52}C_5 = 2598960$

4. You have 7 posters to arrange in a row on your wall, but only 4 will fit.

(a) *w/o replacement*  
*order matters*

(b)  ${}_7P_4 = 840$