# CIS7 Unit 4 In-Class Assignment

1. When is Sum Rule applicable?
2. At the movie theater, there are popcorn, candy, pretzel, nacho and 5 types of soft drinks. You decide to select an item and a type of soft drink for the movie.
3. How many choice combinations do you have?
4. If you have to make a decision between food item and a soft drink, how many choices do you have?
5. If you decide to select two different food items and a soft drink, how many choices do you have?
6. When is the Product Rule applicable?
7. To open a combination padlock, you must use 3 numbers (0 – 40). Each number can only be used once. How many combinations of numbers can you use?
8. An attacker is using a brute force software to guess your password, which has 7 case-sensitive alphanumeric characters.
9. How many different passwords must the software attempt?
10. If you decide to use symbols (in 16 allowed symbols list) in addition to your password, how many attempts will the software try to guess your 8-character alphanumeric password?
11. How long will the brute force software take to guess the password from question 5B if the system takes .5 second to enumerate a password?
12. Suppose passwords may have 8 case-sensitive alpha-numeric characters and must contain at least 1 digit and at least 1 letter. How many are there?
13. There are 3 groups of audience, 30 people in group 1, 40 people group 2 and 50 people in group 3.
14. How many distinct ways can a person be selected from all three groups to win a prize?
15. How many distinct ways can a person be selected from each group to meet the performer?
16. How many distinct ways can 5 people be selected from group 3 to win the tickets for the next event?
17. How many distinct ways can 5 people be selected from all the groups to win back-stage passes?
18. Use the Inclusion-Exclusion Principle to determine how many positive integers between 100 and 987 are inclusive?
19. How many positive integers between 100 and 987 are divisible by 8?
20. How many positive integers between 100 and 987 are even?
21. How many positive integers between 100 and 987 have distinct digits?
22. If there are 38 people in a room, how many people would be guaranteed to have the same day of birth?
23. What is permutation?
24. Let’s assume that you receive free 10 movies on Netflix, 5 comedy movies, 2 action movies and 3 drama movies.
25. If you only have time to watch 3 comedy movies of the 5 free options. How possible arrangements of action movies can you watch?
26. On your day off, you decide to watch 4 the free comedy movies, 2 action movies and 3 drama, how many possible combination of movies can you watch?
27. If you decide to watch all the comedies movies first (A, B, C, D, E), then watch the action movies (J, K), how many distinct arrangements are possible?