

Exam 2 Practice Problems

Part 4 – Counting

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1. There are three letters in an airport's abbreviation.
 - (a) How many different airport call letters are possible?
 - (b) How many are possible if no repeats are allowed? How many if three of the same letter is not allowed
 - (c) How many are possible if no repeats are allowed and a vowel must be in the middle?
2. A pizza place has 12 different toppings available for pizza. How many different 2 item pizzas are possible?
3. How many different "words" can be made from the letters in *HALLOWEEN*? You must use all the letters, but the "word" does not need to be in an English dictionary.
4. You are dealt 2 cards. How many ways can you be dealt a blackjack? (that is, a sum of 21 where an ace is worth 11 and a 10 and face cards are worth 10).
5. From a class of 18 students a committee of 5 is chosen. One person on the committee is the chair and the others are the members. How many different committees can be chosen?
6. You have 4 different yellow books and 4 different green books. How many ways can the books be arranged on the shelf if the colors must alternate?
7. You have a bag of jelly beans. There are 4 blue, 3 orange and 2 pink jelly beans. A sample of 3 is chosen. How many ways to have at least one blue in the sample?
8. How many ways can a hand of 4 cards be dealt if 3 of them are queens?
9. Among 25 motors 4 are defective. How many ways can a sample of 5 be chosen that contains
 - (a) Exactly 5 that are defective?
 - (b) At least 3 that are defective?
10. You have advertisement to layout for a full page newspaper ad. The ad features 3 different departments and each department has 4 items for sale. If items from the same department must appear all on the same row, how many different ads are possible?