

LDDR Niveau 1: Analyse Combinatoire

- 1. 17** How many different ways of sitting 7 people are there when
- 1) they sit on a bench ?
 - 2) they sit on chairs around a round table ?
- 1. 18** Determine the number of words (anagrams) that can be written with the letters of
- 1) THEIR
 - 2) UNUSUAL
 - 3) SOCIOLOGICAL
- 1. 19** We have boxes and balls. In each box it is possible to put one and only one ball. In each situation, determine the number of different ways we have to place the balls in the boxes.
- 1) Place 5 balls of different color in 5 aligned boxes.
 - 2) Place 5 balls taken out of 12 balls of different color in 5 aligned boxes.
 - 3) Place 5 balls taken out of 7 white balls and 10 black balls in 5 aligned boxes.
 - 4) Place 7 white balls and 10 black balls in 20 aligned boxes.
 - 5) Place 9 balls taken out of 6 white balls and 10 black balls in 9 aligned boxes.
 - 6) Place 10 white balls and 10 black balls in 20 aligned boxes such that the 2 middle boxes contain each one a white ball.
- 1. 20** In a meeting of 25 women and 15 men, we elect a committee of 5 people.
- 1) How many possible committees do we have ?
 - 2) How many committees contain 3 women ?
 - 3) How many committees contain at least 3 women ?
- 1. 21** On a boat, a signal is formed of 8 flags that are vertically aligned. How many different signals can we form with 4 red flags, 3 white flags and 1 blue flag ?
- 1. 22** Answer the following :
- 1) How many possibilities do we have when we play the lottery ?
 - 2) How many different tickets can be filled at the Euromillion ?
- 1. 23** The alphabet contains 26 letters : 6 vowels and 20 consonants.
- 1) How many different five-letter words that contain 3 different consonants and 2 different vowels do we have ?
 - 2) How many of these words contain the letter B ?
- 1. 24** We distribute 9 cards (from a deck of 36 cards) to 4 players.
- 1) How many different hands can a player have ?
 - 2) How many different deals are there (considering the four players) ?
 - 3) How many hands contain the four jacks ?
 - 4) How many possibilities do you have, when taking 5 cards from the deck, to get at least one ace ?
- 1. 25** Sylvia has 11 very good friends and she wants to invite five of them for dinner.
- 1) How many possibilities does she have ?
 - 2) How many possibilities does she have if 2 of them are married and they only accept to come together ?
 - 3) How many possibilities does she have if 2 of them are on bad terms and prefer not to meet each other ?
- 1. 26** Determine the number of possibilities that has Lisa to place on her shelf 5 thick books, 4 medium and 3 thin if the books of the same size are placed together ?