

Example 3

combination

If 12 points are arranged in a circle, how many different lines can be formed by connecting two of the points to form a straight line?

$$12C_2 = 66$$

**Example 4**

no order - so not permutation, but combinations select.

There are 50 high school students in a small town. The school's cross-country coach wants to randomly select 9 students to form a team.

a) How many different teams can be created?

use calculator

combination

$$50C_9 = \frac{50!}{9!(50-9)!}$$

$$= 25,054,33,700$$

b) The coach rents a van and drives his team to the race. Calculate the number of ways the students can be seated, if there are 9 passenger seats.

$$9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$$

there is no specific position they can be arranged in any order

$$9! = 362,880$$