

Combinations

1) How many different 3-digit numbers can we create using 8 digits, 1, 2, 3, 4, 5, 6, 7, and 8 without repetition of the digits, i.e. such numbers that only contain different digits?

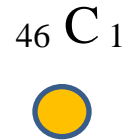
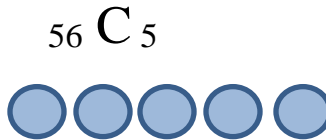
2) How many different ways are there to choose a team of 3 students out of 8 to participate in the math Olympiad.



How about the teams of 3 students? Is it $8 \cdot 7 \cdot 6$ different teams of 3 students out of 8?

- In the school cafeteria, there is only limited space to form the line, so only 25 students can be inside simultaneously and form the line. How many ways are there to this line to be formed in the cafeteria, if there are 100 students in school in total?
- How many different ways are there to form a Science Olympiad team of 25 students in this school? In which case do you think, order is very important and in which case it is not?

- Three men have 4 coats, 5 waist coats, and 6 caps. In how many ways can they wear them?
- Let's calculate our chance to win a lottery:



Simplify the following expressions:

a. $aa^m(-a)^2 =$

b. $c^k c(-c^2)c^{k-1}c^3 =$

c. $2^4 + 2^4 =$

d. $2^m + 2^m =$

e. $2^m \cdot 2^m =$

