

permutations of  $n$  things  
chosen  $r$  at a time

combination of  $n$  things  
chosen  $r$  at a time

!

5!



The local Burger Bonanza offers 8 toppings for their custom burgers and you can choose any 4 of them for their \$6.99 combo special. How many different types of burgers can you order with 4 different toppings?

The Central Community College Chess Club are choosing three mascots for their team. The mascots are a rook, knight, and a pawn. If there are 7 on the team, how many ways can the club randomly choose their new mascots?

The Juno Jumping Jesters are choosing 4 members to represent their team at a regional competition. How many different ways can they select representatives if there are 13 people on the team?

There are 4 horses and 6 riders. Due to the number of horses, only 4 riders can be chosen to be in the big parade. If the riders for the horses are selected at random, how many ways can they riders be arranged with the horses?

Jimmy went to Catch You On the Flip Side, a vintage record store. He found 10 albums from his favorite group, Rockin' Robots. Jimmy only has enough money to buy 3 of them. How many possible ways can he select his new collection of 3 records?