Name: _____

Combinations

Exercise 1: How many ways can I give 3 tin cans to 8 people?

Exercise 2: At Joe's Pizza Parlor, in addition to cheese there are 8 different toppings. If you can order any number of toppings, then how many different toppings are possible?

Exercise 3: Prove: $C_k^n = C_{n-k}^n$

Exercise 4: In how many ways could you select three of these digits: 1, 2, 3, 4, and 5?

Exercise 5: You have 5 shirts, but you will select only 3 for your vacation. In how many different ways can you do this?

Exercise 6: Find the number of combination of:

1) 9 elements taken 4 at a time.
2) 10 elements taken 4 at a time.
3) 12 elements taken 3 at a time.
4) 9 elements taken 3 at a time.
5) 17 elements taken 16 at a time.

Exercise 7: A school committee of 5 is to be formed from 12 students. How many committees can be formed if John must be on the committee?

Exercise 8: From a standard deck of 52 cards, a 5 card hand is dealt. How many distinct five card hands are there if the queen of spades and the four of diamonds must be in the hand?

Exercise 9: There are 45 songs, and you want to make a mix CD of 18 songs that must include 3 particular songs. How many different selections could you make?

Exercise 10: If a committee of 7 people is to be formed from a pool of 12 people, but Rachel and Megan must be on the committee, how many selections can be made?

Exercise 11: There are 8 parents and 43 students going on a school trip. Two groups are made, a large group with 30 students and 5 parents, and a small group with 13 students and 3 parents. How many different ways can the parents be chosen for the small group?

Exercise 12: A construction crew has three members. A team of two must be chosen for a particular job. In how many ways can the team be chosen?

Exercise 13: The board of directors of a corporation has 10 members. In how many ways can they choose a committee of 3 board members to negotiate a merger?

Exercise 14: An ice-cream shop has six different flavors of ice cream, and you can order any combination of any number of them (but only one scoop of each flavor). How many different ice-cream cone combinations could they truthfully advertise?