

Name
Date

Counting Problems

1. How was the Fundamental Counting Principle derived?
2. Write the Fundamental Counting Principle.
3. Define “Permutation”
4. Define “Combination”
5. Find ${}_{10}C_3$
6. In how many ways can the coach pick a team of five players from the nine that tried out for the team?
7. Alice’s Pizza offers 10 different types of pizza toppings. How many different combinations can be made of pizzas with three toppings?

8. There are 12 members on Bob's team including Bob. If Bob's car only holds four people, in how many ways can Bob choose people to ride in his car to go to the game?

9. The pro shop at the golf course has five different kinds of golf balls. How many different ways can a golfer wishing to choose two different golf balls have?

10. Ten people's names are in a hat to be drawn to take a cruise, if three people are to be drawn, how many different ways can the group be chosen?

11. To do a random poll, three people out of a club of fifty will be chosen to answer questions. How many different ways could groups of three be chosen for the poll?

12. An ice cream store has 15 different flavors, how many different double scoop ice cream cones can be made if each cone has to have two different flavors?

13. In problem #12, how many different cones can be made if a double scoop could consist of the same flavor?

14. How many distinct permutations are in the word "act"?

15. How many distinct permutations are in the word “look”?
16. How many distinct permutations are in the word “Mississippi”?
17. A committee of three is selected at random from a group of seven Americans, three Italians, and five Cubans, how many different committees can be formed?
18. Ted has five coins in his pocket; a half dollar, quarter, dime, nickel, and penny. How many ways can he leave a tip if leaves exactly three coins?
19. How many different 5-card poker hands are there?
20. In Keno, how many ways can be 20 numbers be chosen?