

Permutations and Combinations Worksheet

Evaluate each permutation or combination (you must show the set up) :

1. ${}_7P_3$ 2. ${}_7P_4$ 3. ${}_7P_7$ 4. ${}_8C_3$ 5. ${}_8C_5 \cdot {}_7C_3$ 6. ${}_7C_2$

Find the number of possibilities (you must show the set up).

7. The ski club with ten members is to choose three officers captain, co-captain & secretary, how many ways can those offices be filled?
8. The company Sea Esta has ten members on its board of directors. In how many different ways can it elect a president, vice-president, secretary and treasurer?
9. For a segment of a radio show, a disc jockey (Dr. Jams) can play 4 songs. If there are 8 to select from, in how many ways can the program for this segment be arranged?
10. Suppose you are asked to list, in order or preference, the three best movies you have seen this year. If you saw 10 movies during the year, in how many ways can the three best be chosen and ranked?
11. In the Long Beach Air Race six planes are entered and there are no ties, in how many ways can the first three finishers come in?
12. In a production of *Grease*, eight actors are considered for the male roles of Danny, Kenickie, and Marty. In how many ways can the director cast the male roles?
13. Seven bands have volunteered to perform at a benefit concert, but there is only enough time for four of the bands to play. How many lineups are possible?

Find the number of combinations (you must show the set up).

14. An election ballot asks voters to select three city commissioners from a group of six candidates. In how many ways can this be done?
15. A four-person committee is to be elected from an organization's membership of 11 people. How many different committees are possible?
16. You are on your way to Hawaii (Aloha) and of 15 possible books your parents say you can only take 10. How many different collections of 10 books can you take?
17. There are 12 standbys who hope to get on your flight to Hawaii, but only 6 seats are available on the plane. How many different ways can the 6 people be selected?
18. To win the small county lottery, one must correctly select 3 numbers from 30 numbers. The order in which the selection is made does not matter. How many different selections are possible?