



Assignment

Most of these questions are combinations. However, some permutations are included so the first step is to determine whether a count is a permutation or a combination.

1. Evaluate:

a) ${}_{12}P_4$

b) ${}_{12}C_4$

c) ${}_5P_5$

d) ${}_5C_5$

e) ${}_{120}C_{115}$

2. Evaluate each pair and explain your results.

a) ${}_{10}C_3$ and ${}_{10}C_7$

b) ${}_5C_3$ and ${}_5C_2$

c) ${}_{10}C_4$ and ${}_{10}C_6$

3. Based on your discovery in Question 2, if ${}_nC_r = 120$, then what other combination must also produce an answer of 120?

4. In how many ways can four policemen be selected for special duty from a group of 12 policemen?

5. Tasha's wardrobe includes five slacks, eight blouses, and five pairs of shoes. She wants to select three slacks, four blouses, and three pairs of shoes for her camping trip. What is the number of selections Tasha can make?

6. In a class of 30 students, each student shakes hands with each of the other students once. How many handshakes are there?

7. a) How many different five-card hands can be dealt from an ordinary deck of 52 cards?

b) How many of these hands contain five cards of the same suit?

8. Lotto 6-49 is a lottery in which a person selects six numbers from 1 to 49. How many ways can a selection be made?

9. A woman gives a dinner party for six of her nine friends.

a) In how many ways can she choose her six friends?

b) In how many ways can she choose her six friends if Dorothy and Oksana will not attend together?

(omit)