

4.E: Permutations with Similar Elements (Optional Exercises)

Do the following problems using the techniques learned in this section.

1. In how many different ways can five children hold hands to play "Ring Around the Rosy"?	2. In how many ways can three people be made to sit at a round table?
3. In how many different ways can six children ride a "Merry Go Around" with six horses?	4. In how many ways can three couples be seated at a round table, so that men and women sit alternately?
5. In how many ways can six trinkets be arranged on a chain?	6. In how many ways can five keys be put on a key ring?
7. Find the number of different permutations of the letters of the word MASSACHUSETTS.	8. Find the number of different permutations of the letters of the word MATHEMATICS.
9. Seven flags are to be flown on seven poles: 3 flags are red, 2 are white, and 2 are blue,. How many different arrangements are possible?	10. How many different ways can 3 pennies, 2 nickels and 5 dimes be arranged in a row?
11. How many four-digit numbers can be made using two 2's and two 3's?	12. How many five-digit numbers can be made using two 6's and three 7's?
13. If a coin is tossed 5 times, how many different outcomes of 3 heads and 2 tails are possible?	14. If a coin is tossed 10 times, how many different outcomes of 7 heads and 3 tails are possible?
15. If a team plays ten games, how many different outcomes of 6 wins and 4 losses are possible?	16. If a team plays ten games, how many different ways can the team have a winning season?

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