

Section 11.1 Extra Practice

1. Use an organized list or a tree diagram to identify the possible arrangements for each situation. If you use abbreviations, state what each represents.
 - a) How many ways can an ice cream cone be constructed with 3 different scoops of ice cream flavours: strawberry, vanilla, and chocolate?
 - b) How many two-letter arrangements can be made using the letters in the word DUCK?
 - c) How many different outfits can you put together if you own 3 shirts, 2 pairs of pants, and 2 pairs of runners?
2. How many five-digit numbers can be made from the digits 2, 3, 4, 7, and 9 if no digit can be repeated?
3. Write an expression for each, using factorial notation.
 - a) ${}_8P_r$
 - b) ${}_nP_5$
 - c) ${}_nP_r$
4. Evaluate each expression.
 - a) ${}_9P_2$
 - b) ${}_8P_3$
 - c) ${}_5P_4$
5. How many two-digit numbers can be made from the digits 2, 3, 4, 7, and 9 if no digit can be repeated?
6. How many arrangements can be made using all the letters of each word?
 - a) VICTORIA
 - b) ABBOTSFORD
 - c) OSOYOOS
7. A lacrosse team's record over a season was 15 wins, 4 losses, and 2 ties.
 - a) In how many different orders could this record have occurred?
 - b) If you know that the team started the season strongly with five straight wins, how many orders are possible for the team's results?
8. Determine the number of arrangements of the letters of the word TATTOO under each condition:
 - a) without further restriction
 - b) begins with a T
 - c) begins with two Ts
 - d) begins with three Ts
9. Express $501 \times 500 \times 499 \times 498$ in the form ${}_nP_r$.
10. Solve for the variable.
 - a) ${}_nP_2 = 56$
 - b) ${}_nP_6 = 5({}_nP_5)$

