

Section 11.2 Extra Practice

1. Decide whether each involves a combination or a permutation. Briefly describe why. You do not need to solve the problem.
 - a) In how many ways can 3 cards be selected from a standard deck of cards?
 - b) How many different 3-course meals can be selected if there are 3 choices for appetizers, 4 choices for entrees, and 2 dessert choices?
 - c) Fifteen students try out for a team of 8 volleyball players. How many different teams could be selected?
 - d) How many different 3-character combinations can be created using a letter for the first character, a whole number for the second character, and an even number for the third character?
2. For each solution, create a word problem. Rewrite each solution using ${}_nC_r$ or ${}_nP_r$ notation.
 - a) $10 \times 9 \times 8 \times 7$
 - b) $\frac{28 \times 27 \times 26 \times 25}{4!}$
3. Evaluate.
 - a) ${}_9C_4$
 - b) ${}_{11}P_3$
 - c) ${}_5C_2 \times {}_4C_2$
 - d) ${}_7P_5 \times {}_6P_3$
4. A class has 30 students.
 - a) How many ways can a committee of 3 people be selected from the class?
 - b) How many ways can an executive committee consisting of 3 people (president, vice-president, and secretary) be selected from the class?
 - c) If there are 10 boys and 20 girls in the class, how many ways can a committee of 3 people be selected from the class if the committee must have 1 boy and 2 girls?
5. How many odd 3-digit whole numbers are there? For example, 203 is acceptable but 023 is not.
6. Solve for n .
 - a) ${}_nC_2 = 36$
 - b) ${}_nC_4 = 15$
 - c) ${}_nC_{n-2} = 10$
 - d) ${}_{n+1}C_{n-1} = 21$
7. A theatre company has 13 actors—8 men and 5 women. How many different ways are there to choose from the company a group of 6 that includes at least 4 women?
8. Simplify ${}_nC_2$.
9. Allen, Breanne, Cody, Dave, and Eric sit in 5 adjacent seats in a movie theatre. How many ways can this be done?
 - a) without further restrictions?
 - b) if Breanne sits next to Dave?
 - c) if Dave refuses to sit next to Eric?

