MATH 241 Chapter 1 Live Exercises

1. How many different 4-digit pins? Each digit can either be a letter or a number.
2. Number of permutations of the letters in the word "Vassar"?
3. Suppose you have 3 distinctive gifts to give to 8 friends. How many permutations of give gifting strategy do you have?
4. Lining up 8 people / 4 married couples.
   (a) In how many ways can 4 married couples line up?
   (b) What if couples must stand together?
5. How many distinct hands of "four of a kind" (four of the five cards are of the same rank)?
6. Among 4 married couples, we want to select a group of 3 people that is not allowed to contain a married couple. How many choices are there?
7. How many subsets are there of the set $\{1, 2, \cdots, n\}$?
8. **Order matters or not?**
   (a) Textbook Example 5b: Ten children are to be divided into an A team and a B team of 5 each. The A team will play in one league and the B team in another. How many different divisions are possible?
   (b) Textbook Example 5c: In order to play a game of basketball, 10 children at a playground divide themselves into two teams of 5 each. How many different divisions are possible?
9. In a well shuffled deck of 52 cards, how many ways can the 4 Aces to be together?