

1. How many subsets of $\{a, b, c, d, e, f, g\}$ contains a or g?

Total subsets of $\{a, b, c, d, e, f, g\} =$

Number of subsets of $\{b, c, d, e, f\} =$

Number of subsets containing a or g =

2. How many subsets of $\{a, b, c, d, e, f, g\}$ contains at most 3 elements?
3. A dinner allows you to select from five appetizers, three salads, four entrees, and three beverages. How many different dinners are there if you may have an appetizer or a salad but not both?
4. 10 students. How many ways to form a party planning committee? Each student can be in or out of the committee.
5. How many permutations of letters A B C D E F G H contain a substring ABC.
6. Suppose that there are eight runners in a race. The winner receives a gold medal, the second-place finisher receives a silver medal, and the third-place finisher receives a bronze medal. How many different ways are there to award these medals, if all possible outcomes of the race can occur?