Example 9. Find all the subsets of A = {a, b, c}.

First, let us find the number of subsets of A. Since |A| = 3 (there are 3 elements in A), the number of subsets of A is

$$2^3 = 8.$$

1. The empty set $\phi$ is a subset.
2. The sets with one element from A: {a}, {b}, {c}
3. The sets with two elements from A: {a, b}, {a, c}, {b, c}

proper subsets

4. The sets with three elements from A: {a, b, c} — improper subset

We've found all the 8 subsets: $\phi$, {a}, {b}, {c}, {a, b}, {a, c}, {b, c}, {a, b, c}.