Cardinality and Power Set

**DEFINITION**

The **cardinality** of a (finite) set is the number of elements in the set. For example, the cardinality of the set \{-1, 0, 1, 2, \text{apple, ♥}\} is SIX. There are six different “things” listed in the set.

Write down the cardinality of each of the following finite sets in the corresponding box.

1. \{-1, 0, 1, 2\}
   
2. \{♥, ♠, ♦\}
   
3. \{one, two, four, six, seven, nine, ten, eleven\}
   
4. \{one, two, seven, ten, eleven\}, four, six, nine
   
5. \{-1, 0, 1, 2\}, \{apple, orange, grape\}, ♠, ♠
   
**DEFINITION**

The **power set** of a set is the set of all subsets of a set. For example, the power set of the set \{1, 2\} is\{\{\}, \{1\}, \{2\}, \{1, 2\}\}. The **empty set** \{\}\ is the set with cardinality zero. The empty set is a subset of every set.

Write down the power set of \{1, 2, 3\}

Write down the cardinality of the power set of \{1, 2, 3\}