Worksheet 1

Let A, B, C, D be the sets

$A = \{a, b, c, d, e, f, g\}$	$B = \{a, e, i, o, u\}$
C = A - B	$D = \{u, v, w, x, y, z\}$

In the above, the notation A-B means the complement of B in A or in other words, the elements of B that are not in A. This operation is sometimes called set difference.

1. Find $A \cup B$. How many elements are there in $A \cup B$. Do this by hand by listing the elements of $A \cup B$ as well as by referring to the inclusion-exclusion principle

$$|A \cup B| = |A| + |B| - |A \cap B|.$$

2. Find $B \cap C$. How many elements does this set have? What is a good name for this set?

3. List all the subsets of $A \cap B$. How many subsets are there? In general, do you think you can find a formula for the number of subsets of a set S if it is known only that there are n elements in the set S? Try to guess such a formula by trying a few examples.