D • Push Button Lock

The *Frobozz Magic Lock Company* is in the business of manufacturing *push button* style combination door locks. A push button door lock consists of a number of push buttons **B**, ($1 \le$ **B** ≤ 11), labeled "1" through "**B**". The lock is opened by pressing the correct sequence of button combinations and then turning the doorknob. If the sequence of presses is correct, the door *magically* opens.

A *combination* consists of 1 or more buttons being pressed simultaneously. A *sequence* consists of a series of combinations. A sequence must have at least one combination. Once a button has been used in a combination, it may not be used again in the same sequence. In addition, it is not necessary to use all the buttons in a sequence. For example, for **B**=8:

(1-2-3)(4)(7-8)

is a valid sequence with 3 combinations (1-2-3), (4), and (7-8). Note that buttons 5 and 6 are not used in this sequence.

(1-2-3)(2-4)(5-6)

is not a valid sequence, since button 2 appears in 2 combinations (1-2-3) and (2-4).

The CEO of Frobozz, *J. Pierpont Flathead*, wants you to write a program that determines the number of valid sequences possible for given values of **B**. The program must be able to process a list of lock orders (datasets) from customers and generate a report showing the order number, the value of **B**, and the number of valid sequences possible. This list will always contain at least one dataset, but no more than 100 datasets.

Input

The first line of input contains a single integer **N,** ($1 \le$ **N** ≤ 100), representing the number of datasets that follow. Each dataset consists of a single line of data containing a single integer **B**, which is the number of buttons for the lock.

Output

For each dataset, display the dataset number, a blank, the value **B**, a blank, and the number of valid sequences.

Sample Input	Sample Output
3 3 4 3	1 3 25 2 4 149 3 3 25

Reference Materials:

J. Pierpont Flathead