1191 – Bar Codes

A bar-code symbol consists of alternating dark and light bars, starting with a dark bar on the left. Each bar is a number of units wide. Figure 1 shows a bar-code symbol consisting of 4 bars that extend over 1+2+3+1=7 units.

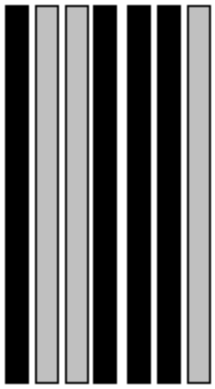

Figure 1: Bar-code over 7 units with 4 bars

In general, the bar code **BC(n, k, m)** is the set of all symbols with **k** bars that together extend over exactly **n** units, each bar being at most **m** units wide. For instance, the symbol in Figure 1 belongs to BC(7,4,3) but not to BC(7,4,2). Figure 2 shows all 16 symbols in BC(7,4,3). Each '1' represents a dark unit, each '0' represents a light unit.

0: 1000100 | 4: 1001110 | 8: 1100100 | 12: 1101110
1: 1000110 | 5: 1011000 | 9: 1100110 | 13: 1110010
2: 1001000 | 6: 1011100 | 10: 1101000 | 14: 1110100
3: 1001100 | 7: 1100010 | 11: 1101100 | 15: 1110110

Figure 2: All symbols of BC(7,4,3)

Input

Input starts with an integer **T (≤ 20000)**, denoting the number of test cases.

Each case contains three integers: **n, k, m (1 ≤ k, m ≤ n ≤ 50)**.

Output

For each case, print the case number and **BC(n, k, m)**.

Sample Input	Output for Sample Input
2 7 4 3 7 4 2	Case 1: 16 Case 2: 4