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.

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' 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)

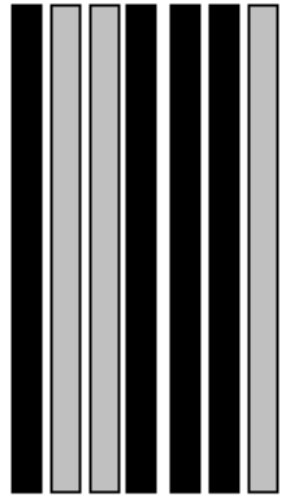

Figure 1: Bar-code over 7 units with 4 bars

Input

Each input will contain three positive integers n, k, and m $(1 \leq n, k, m \leq 50)$.

Output

For each input print the total number of symbols in BC(n, k, m). Output will fit in 64-bit signed integer.

Sample Input

```
7 4 3
7 4 2
```

Sample Output

```
16
4
```