The 2019 Ethiopian Collegiate Programming Contest

Problem C
Byte Coin
Time Limit: 0.5 Seconds

International Capital and Property Company (ICPC) is investing money to Byte Coin, a virtual currency invented by Dr. Kim. In reality, the price of Byte Coin is unpredictable. But in this problem, assume that the price of Byte Coin can be accurately estimated in advance.

We are given stock prices of n days from day 1 to day n, like Figure 1, and the initial amount W of real money. The red square in Figure 1 represents the price Byte Coin on each day. We assume that we can sell and buy Byte Coins on each day. For buying and selling Byte Coins, we cannot split a Byte Coin. We want to maximize the money that we have when selling all the coins we have on day n.

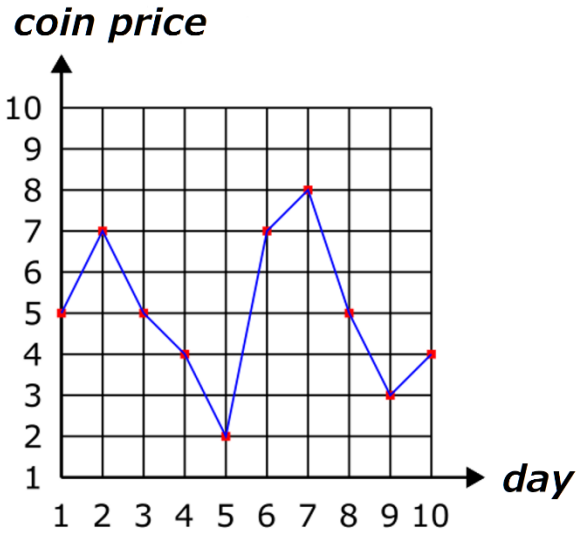

Figure 1. The Byte Coin price change for ten days

For example, the price of Byte Coin is given as Figure 1 in advance on the day 1 and the initial money W is 24. To maximize the revenue, the best strategy is like the following. On day 1, we buy 4 coins by paying money 20. On day 2, we sell all the coins and get money 28. So we have totally money 32. On day 5, we buy 16 coins by paying money 32. We sell all the coins on day 7 and have totally money 128. On day 9, we buy 42 coins by paying money 126 and on day 10, the last day, we sell all the coins. Then, we have money 170 on day 10, which is maximum.

Given the number of days n, the initial amount of money W, and the prices of Byte Coin on each of day 1 to n, write a program to maximize the final amount of money when selling all the coins we have on day n.

Input
Your program is to read from standard input. The input starts with a line containing two integers n and W ($1 \leq n \leq 15, 1 \leq W \leq 100{,}000$), where n is the number of days and W is the initial money. In the following n lines, the i-th line contains an integer s_i ($1 \leq s_i \leq 50$), where s_i denotes the price of Byte Coin on the day i.

Output

Your program is to write to standard output. Print exactly one line containing the maximum money that we have when selling all the coins we have on day n. Beware that even though the initial amount of money W is not so big but the final amount of money can be very large.

The following shows sample input and output for three test cases.

Sample Input 1

```
10 24
5
7
5
4
2
7
8
5
3
4
```

Output for the Sample Input 1

```
170
```

Sample Input 2

```
5 15
5
4
4
2
7
```

Output for the Sample Input 2

```
50
```

Sample Input 3

```
7 54
7
5
5
4
2
2
1
```

Output for the Sample Input 3

```
54
```