<https://www.techgig.com/challenge/question/coding-challenge-semi-pro/aWhuQzZyZm4zQnJiMHlHN0VxZEJFMmtvRHp5ZEROTlpRU1dCcnhGdnhqaz0=/1>

Happy New Year (100 Marks)

Delhi is the 11th  most polluted city in  the world. On the occasion of Diwali, the Supreme Court of India took an appreciable decision of banning crackers. But unfortunately, they forgot to ban crackers on New Year. How silly, isn t it? But, the Delhites are not silly, so they are going to make full use of this opportunity by buying as many crackers as possible on New Year.

There are total **S** cracker shops in Chawri Bazar, and **P** people have gone there to buy crackers. The shops are lined from left to right and are numbered from 1 to S. The people are numbered from 1 to P. At i-th shop **Ti** seconds are required to buy crackers. The people can make queues in front of the shops. As someone in front of the queue finishes buying crackers, the person directly behind him gets his chance to buy crackers.

As Delhites are smart people, they want to find the minimum number of seconds in which all of them can finish their shopping. A person can finish his shopping from a single shop.

Can you please help them find the answer?

**Input Format**

The first line of input contains two positive integers **S** - the number of cracker shops and **P** - the number of people shopping.

Each of the following **S** lines contains an integer **Ti** - the time taken for shopping at the ith shop.

**Constraints**

1 <= S <= 10^5

1 <= P <= 10^9

1 <= Ti <= 10^9

**Output Format**

An integer denoting the required minimum time in seconds.

**Sample TestCase 1**

Input

2 6

5

12

Output

24

Explanation

4 persons make queue in front of shop 1, and 2 persons make queue in front of shop 2. First queue gets empty in time = 5 \* 4 = 20 seconds, and second queue gets empty in time = 12 \* 2 = 24 seconds. Hence, if 24 seconds is given, all the 6 persons will be done with shopping, no one will be left.

No other way of shopping results in time less than 24 seconds.

**Sample TestCase 2**

Input

3 10

5

15

8

Output

30

Explanation

In this case, 6 persons make queue in front of shop 1, 2 persons make queue in front of shop 2, and 2 persons make queue in front of shop 3. First queue gets empty in time = 5 \* 6 = 30 seconds, the second queue gets empty in time = 15 \* 2 = 30 seconds, and the third queue gets empty in time = 8 \* 3 = 16 seconds. Hence, in 30 seconds all the people finish shopping for crackers.