

Roses

Valentine has decided to congratulate all of his N girlfriends by giving each one a yellow rose. In the nearby flower market yellow roses are sold by exactly two vendors. Each of them has an unlimited amount of roses; however, they sell roses only in bouquets (so you can only buy a certain amount of roses at a time). At the first vendor you can buy a bouquet of A roses for B Euros; at the second vendor – a bouquet of C roses for D Euros. A , B , C , and D are all positive integers. If Valentine can buy more than N roses for a smaller amount of money than buying precisely N roses, he will buy more than N roses and gift the leftover to any of the two lovely salesgirls.

Write a program that calculates the minimum amount of money in Euros for which Valentine can buy at least N roses!

Input data

The input file **roses.in** contains exactly one line. The first and only line contains five integers: N , A , B , C , and D ; every two consecutive numbers are separated by a single whitespace. The value of N does not exceed 10^{15} , the values of A , B , C , and D do not exceed 10^5 .

Output data

The output file **roses.out** should contain one line with one natural number – the minimum amount of money in Euros for which Valentine can buy at least N roses. It is known that for all given test cases the correct answer does not exceed 10^{18} .

Examples

Input data (file roses.in)	Output data (file roses.out)	Comments
5 1 4 3 6	12	Valentine will buy six roses – two bouquets at the second place.

Input data (file roses.in)	Output data (file roses.out)	Comments
22 2 3 10 14	31	Valentine will buy one bouquet at the first place and two at the second.

Grading

Test cases where all values in the input do not exceed 1000 are worth 20 points.

Test cases where $N \leq 10^5$ are worth 60 points.