Halloween Sale ☆

You wish to buy video games from the famous online video game store Mist.

Usually, all games are sold at the same price, p dollars. However, they are planning to have the seasonal Halloween Sale next month in which you can buy games at a cheaper price. Specifically, the first game you buy during the sale will be sold at p dollars, but every subsequent game you buy will be sold at exactly d dollars less than the cost of the previous one you bought. This will continue until the cost becomes less than or equal to m dollars, after which every game you buy will cost m dollars each.

For example, if $p = 20$, $d = 3$ and $m = 6$, then the following are the costs of the first 11 games you buy, in order:

$$20, 17, 14, 11, 8, 6, 6, 6, 6, 6, 6$$

You have s dollars in your Mist wallet. How many games can you buy during the Halloween Sale?

Input Format

The first and only line of input contains four space-separated integers p, d, m and s.

Constraints

- $1 \leq m \leq p \leq 100$
- $1 \leq d \leq 100$
- $1 \leq s \leq 10^4$

Output Format

Print a single line containing a single integer denoting the maximum number of games you can buy.

Sample Input 0

```
20 3 6 80
```

Sample Output 0

```
6
```

Explanation 0

We have $p = 20$, $d = 3$ and $m = 6$, the same as in the problem statement. We also have $s = 80$ dollars. We can buy 6 games since they cost $20 + 17 + 14 + 11 + 8 + 6 = 76$ dollars. However, we cannot buy a 7th game. Thus, the answer is 6.

Sample Input 1

```
20 3 6 85
```

Sample Output 1

```
7
```

Explanation 1

This is the same as the previous case, except this time we have $s = 85$ dollars. This time, we can buy 7 games since they cost $20 + 17 + 14 + 11 + 8 + 6 + 6 = 82$ dollars. However, we cannot buy an 8th game. Thus, the answer is 7.

Current Buffer (saved locally, editable) Java 7

```
1
2  import java.util.Scanner;
3
4  public class Solution {
5
6      public static int howManyGames(int salesPrice, int amountOfDiscount, int minimumSalesPrice, int
   availableAmount) {
7
8      int numberOfGames = 0;
9          if (availableAmount < salesPrice) {
10             return numberOfGames;
11         }
12
13         while (salesPrice >= minimumSalesPrice&&availableAmount>=0) {
14             numberOfGames++;
15             availableAmount -= salesPrice;
16             salesPrice -= amountOfDiscount;
17         }
18
19         numberOfGames += availableAmount / minimumSalesPrice;
20
21         return numberOfGames;
22     }
23
24     public static void main(String[] args) {
25
26         Scanner reader = new Scanner(System.in);
27
28         int salesPrice = reader.nextInt();
29         int amountOfDiscount = reader.nextInt();
30         int minimumSalesPrice = reader.nextInt();
31         int availableAmount = reader.nextInt();
32         reader.close();
33
34         int answer = howManyGames(salesPrice, amountOfDiscount, minimumSalesPrice, availableAmount);
35         System.out.println(answer);
36     }
37 }
38
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code