

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 will cost p dollars, and every subsequent game will cost d dollars less than the previous one. This continues until the cost becomes less than or equal to m dollars, after which every game will cost m dollars. How many games can you buy during the Halloween Sale?

Example

$$p = 20$$

$$d = 3$$

$$m = 6$$

$$s = 70.$$

The following are the costs of the first 11, in order:

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

Start at $p = 20$ units cost, reduce that by $d = 3$ units each iteration until reaching a minimum possible price, $m = 6$. Starting with $s = 70$ units of currency in your Mist wallet, you can buy 5 games:

$$20 + 17 + 14 + 11 + 8 = 70.$$

Function Description

Complete the `howManyGames` function in the editor below.

`howManyGames` has the following parameters:

- `int p`: the price of the first game
- `int d`: the discount from the previous game price
- `int m`: the minimum cost of a game
- `int s`: the starting budget

Input Format

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

Constraints

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

Sample Input 0

20 3 6 80

Sample Output 0

6

Explanation 0

Assumptions other than starting funds, s , match the example in the problem statement. With a budget of **80**, you can buy **6** games at a cost of $20 + 17 + 14 + 11 + 8 + 6 = 76$. A **7th** game for an additional **6** units exceeds the budget.

Sample Input 1

20 3 6 85

Sample Output 1

7

Explanation 1

This is the same as the previous case, except this time the starting budget $s = 85$ units of currency. This time, you can buy **7** games since they cost $20 + 17 + 14 + 11 + 8 + 6 + 6 = 82$. An additional game at **6** units will exceed the budget.