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Halloween Sale

by kevinsogo

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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.

Easy Submitted 1889 times
Max Score **20**

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Suggest Edits

Current Buffer (saved locally, editable) C++14

```
#include <iostream>

int main()
{
    int price, doller, minDoller, total;
    std::cin >> price >> doller >> minDoller >> total;

    int maxGame = 0;
    int dollerSum = 0;
    while(dollerSum <= total)
    {
        dollerSum += price;
        maxGame++;
        (price-doller >= minDoller) ?
            price -= doller: price = minDoller;
    }
    std::cout << maxGame-1 << std::endl;
    return 0;
}

```

Line: 20 Col: 1

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Congrats, you solved this challenge!

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- ✔ Test Case #3
- ✔ Test Case #4
- ✔ Test Case #5
- ✔ Test Case #6
- ✔ Test Case #7
- ✔ Test Case #8
- ✔ Test Case #9
- ✔ Test Case #10
- ✔ Test Case #11
- ✔ Test Case #12
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- ✔ Test Case #19
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- ✔ Test Case #48
- ✔ Test Case #49
- ✔ Test Case #50
- ✔ Test Case #51

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