codility

Training center

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TASKS DETAILS

EASY

1. **FrogJmp**
Count minimal number of jumps from position X to Y.

Task Score	Correctness	Performance
44%	100%	0%

Task description

A small frog wants to get to the other side of the road. The frog is currently located at position X and wants to get to a position greater than or equal to Y. The small frog always jumps a fixed distance, D.

Count the minimal number of jumps that the small frog must perform to reach its target.

Write a function:

```
def solution(X, Y, D)
```

that, given three integers X, Y and D, returns the minimal number of jumps from position X to a position equal to or greater than Y.

For example, given:

```
X = 10
Y = 85
D = 30
```

the function should return 3, because the frog will be positioned as follows:

- after the first jump, at position 10 + 30 = 40
- after the second jump, at position 10 + 30 + 30 = 70
- after the third jump, at position 10 + 30 + 30 + 30 = 100

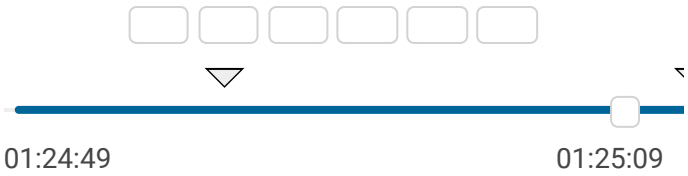
Assume that:

- X, Y and D are integers within the range [1..1,000,000,000];

Solution

Programming language used:	Python
Total time used:	1 minutes
Effective time used:	1 minutes
Notes:	*not defined yet*

Task timeline



Code: 01:25:08 UTC, py, final, score: **44** show code in pop-up

```
1  def solution(X, Y, D):
2      count = 0
3      while X < Y:
4          count += 1
5          X += D
6      return count
```

Analysis summary

- X ≤ Y.

Complexity:

- expected worst-case time complexity is O(1);
- expected worst-case space complexity is O(1).

The following issues have been detected: timeout errors.

For example, for the input `(3, 999111321, 7)` the solution exceeded the time limit.

Analysis

Detected time complexity: **O(Y-X)**

expand all	Example tests	
▶	example example test	✔ OK
expand all	Correctness tests	
▶	simple1 simple test	✔ OK
▶	simple2	✔ OK
▶	extreme_position no jump needed	✔ OK
▶	small_extreme_jump one big jump	✔ OK
expand all	Performance tests	
▶	many_jump1 many jumps, D = 2	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.14 sec.
▶	many_jump2 many jumps, D = 99	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.14 sec.
▶	many_jump3 many jumps, D = 1283	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.14 sec.
▶	big_extreme_jump maximal number of jumps	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.14 sec.
▶	small_jumps many small jumps	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.14 sec.