

## Congratulations

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## Demo ticket

## Session

ID: demo7TUDGX-TGH  
 Time limit: 120 min.

## Status: closed

Created on: 2014-04-23 17:39 UTC  
 Started on: 2014-04-23 17:39 UTC  
 Finished on: 2014-04-23 17:40 UTC

## Tasks in test

1 |  FrogJump

## Correctness

100%

## Performance

100%

## Task score

100%

## Test score

100%

100 out of 100 points

EASY

## 1. FrogJump

Count minimal number of jumps from position X to Y.

score: 100 of 100



## 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  $[1..1,000,000,000]$ ;
- $X \leq Y$ .

Complexity:

## Solution

Programming language used: Python

Total time used: 2 minutes

Effective time used: 2 minutes

Notes: correct functionality and scalability

## Task timeline



17:39:24

17:40:32

Code: 17:40:32 UTC, py, final, score: 100.00

```
1. import math
2. def solution(X, Y, D):
3.     return long(math.ceil((Y-X)/float(D)))
```

## Analysis

Detected time complexity:

 $O(1)$ 

test

time

result

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

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| Example tests                               |          |    |
|---|----------|----|
| example<br>example test                     | 0.050 s. | OK |
| Correctness tests                           |          |    |
| simple1<br>simple test                      | 0.050 s. | OK |
| simple2                                     | 0.050 s. | OK |
| extreme_position<br>no jump needed          | 0.050 s. | OK |
| small_extreme_jump<br>one big jump          | 0.050 s. | OK |
| Performance tests                           |          |    |
| many_jump1<br>many jumps, D = 2             | 0.050 s. | OK |
| many_jump2<br>many jumps, D = 99            | 0.050 s. | OK |
| many_jump3<br>many jumps, D = 1283          | 0.050 s. | OK |
| big_extreme_jump<br>maximal number of jumps | 0.050 s. | OK |
| small_jumps<br>many small jumps             | 0.050 s. | OK |

Training center