

## Demo ticket

### Session

ID: demo9T7Y52-3DH  
Time limit: 120 min.

### Status: closed

Created on: 2014-03-17 15:58 UTC  
Started on: 2014-03-17 15:58 UTC  
Finished on: 2014-03-17 15:59 UTC

### Tasks in test

### Task score

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:

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

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#### Solution

Programming language used: Python

Total time used: 2 minutes

Effective time used: 2 minutes

Notes: correct functionality and scalability

#### Task timeline



15:58:20

15:59:27

Code: 15:59:27 UTC, py, final, score: 100.00

```
1. def solution(X, Y, D):
2.     return (Y - X + D - 1) / D
```

#### Analysis

Detected time complexity:

**$O(1)$**

test	time	result
example example test	0.050 s.	OK
simple1 simple test	0.050 s.	OK
simple2	0.050 s.	OK
extreme_position	0.050 s.	OK

Codility

no jump needed		
small_extreme_jump one big jump	0.050 s.	OK
many_jump1 many jumps, D = 2	0.050 s.	OK
many_jump2 many jumps, D = 99	0.050 s.	OK
many_jump3 many jumps, D = 1283	0.050 s.	OK
big_extreme_jump maximal number of jumps	0.050 s.	OK
small_jumps many small jumps	0.050 s.	OK

Training center