

Problem 326: Power of Three

Problem Information

Difficulty: [Easy](#)

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

Given an integer

n

, return

true

if it is a power of three. Otherwise, return

false

.

An integer

n

is a power of three, if there exists an integer

x

such that

$n == 3^x$

x

.

Example 1:

Input:

$n = 27$

Output:

true

Explanation:

$27 = 3$

3

Example 2:

Input:

$n = 0$

Output:

false

Explanation:

There is no x where 3

x

$= 0.$

Example 3:

Input:

n = -1

Output:

false

Explanation:

There is no x where $3^x = (-1)$.

x

$= (-1)$.

Constraints:

-2

31

$\leq n \leq 2^{31}$

31

- 1

Follow up:

Could you solve it without loops/recursion?

Code Snippets

C++:

```
class Solution {  
public:
```

```
bool isPowerOfThree(int n) {  
    }  
};
```

Java:

```
class Solution {  
    public boolean isPowerOfThree(int n) {  
        }  
    }
```

Python3:

```
class Solution:  
    def isPowerOfThree(self, n: int) -> bool:
```

Python:

```
class Solution(object):  
    def isPowerOfThree(self, n):  
        """  
        :type n: int  
        :rtype: bool  
        """
```

JavaScript:

```
/**  
 * @param {number} n  
 * @return {boolean}  
 */  
var isPowerOfThree = function(n) {  
};
```

TypeScript:

```
function isPowerOfThree(n: number): boolean {  
};
```

C#:

```
public class Solution {  
    public bool IsPowerOfThree(int n) {  
        }  
        }  
}
```

C:

```
bool isPowerOfThree(int n) {  
}  
}
```

Go:

```
func isPowerOfThree(n int) bool {  
}  
}
```

Kotlin:

```
class Solution {  
    fun isPowerOfThree(n: Int): Boolean {  
        }  
        }  
}
```

Swift:

```
class Solution {  
    func isPowerOfThree(_ n: Int) -> Bool {  
        }  
        }  
}
```

Rust:

```
impl Solution {  
    pub fn is_power_of_three(n: i32) -> bool {  
        }  
        }  
}
```

Ruby:

```
# @param {Integer} n
# @return {Boolean}
def is_power_of_three(n)

end
```

PHP:

```
class Solution {

    /**
     * @param Integer $n
     * @return Boolean
     */
    function isPowerOfThree($n) {

    }
}
```

Dart:

```
class Solution {
  bool isPowerOfThree(int n) {

  }
}
```

Scala:

```
object Solution {
  def isPowerOfThree(n: Int): Boolean = {

  }
}
```

Elixir:

```
defmodule Solution do
  @spec is_power_of_three(n :: integer) :: boolean
  def is_power_of_three(n) do
```

```
end  
end
```

Erlang:

```
-spec is_power_of_three(N :: integer()) -> boolean().  
is_power_of_three(N) ->  
.
```

Racket:

```
(define/contract (is-power-of-three n)  
(-> exact-integer? boolean?)  
)
```

Solutions

C++ Solution:

```
/*  
 * Problem: Power of Three  
 * Difficulty: Easy  
 * Tags: math  
 *  
 * Approach: Optimized algorithm based on problem constraints  
 * Time Complexity: O(n) to O(n^2) depending on approach  
 * Space Complexity: O(1) to O(n) depending on approach  
 */  
  
class Solution {  
public:  
    bool isPowerOfThree(int n) {  
  
    }  
};
```

Java Solution:

```
/**  
 * Problem: Power of Three
```

```

* Difficulty: Easy
* Tags: math
*
* Approach: Optimized algorithm based on problem constraints
* Time Complexity: O(n) to O(n^2) depending on approach
* Space Complexity: O(1) to O(n) depending on approach
*/

```

```

class Solution {
public boolean isPowerOfThree(int n) {

}
}

```

Python3 Solution:

```

"""
Problem: Power of Three
Difficulty: Easy
Tags: math

Approach: Optimized algorithm based on problem constraints
Time Complexity: O(n) to O(n^2) depending on approach
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
    def isPowerOfThree(self, n: int) -> bool:
        # TODO: Implement optimized solution
        pass

```

Python Solution:

```

class Solution(object):
    def isPowerOfThree(self, n):
        """
        :type n: int
        :rtype: bool
        """

```

JavaScript Solution:

```

/**
 * Problem: Power of Three
 * Difficulty: Easy
 * Tags: math
 *
 * Approach: Optimized algorithm based on problem constraints
 * Time Complexity: O(n) to O(n^2) depending on approach
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 */

/**
 * @param {number} n
 * @return {boolean}
 */
var isPowerOfThree = function(n) {

};

```

TypeScript Solution:

```

/**
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 * Tags: math
 *
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 * Time Complexity: O(n) to O(n^2) depending on approach
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 */

function isPowerOfThree(n: number): boolean {

};

```

C# Solution:

```

/*
 * Problem: Power of Three
 * Difficulty: Easy
 * Tags: math
 *
 * Approach: Optimized algorithm based on problem constraints

```

```

 * Time Complexity: O(n) to O(n^2) depending on approach
 * Space Complexity: O(1) to O(n) depending on approach
 */

public class Solution {
    public bool IsPowerOfThree(int n) {

    }
}

```

C Solution:

```

/*
 * Problem: Power of Three
 * Difficulty: Easy
 * Tags: math
 *
 * Approach: Optimized algorithm based on problem constraints
 * Time Complexity: O(n) to O(n^2) depending on approach
 * Space Complexity: O(1) to O(n) depending on approach
 */

bool isPowerOfThree(int n) {

}

```

Go Solution:

```

// Problem: Power of Three
// Difficulty: Easy
// Tags: math
//
// Approach: Optimized algorithm based on problem constraints
// Time Complexity: O(n) to O(n^2) depending on approach
// Space Complexity: O(1) to O(n) depending on approach

func isPowerOfThree(n int) bool {

}

```

Kotlin Solution:

```
class Solution {  
    fun isPowerOfThree(n: Int): Boolean {  
        }  
    }  
}
```

Swift Solution:

```
class Solution {  
    func isPowerOfThree(_ n: Int) -> Bool {  
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    }  
}
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Rust Solution:

```
// Problem: Power of Three  
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impl Solution {  
    pub fn is_power_of_three(n: i32) -> bool {  
        }  
    }  
}
```

Ruby Solution:

```
# @param {Integer} n  
# @return {Boolean}  
def is_power_of_three(n)  
  
end
```

PHP Solution:

```
class Solution {
```

```
/**  
 * @param Integer $n  
 * @return Boolean  
 */  
function isPowerOfThree($n) {  
  
}  
}
```

Dart Solution:

```
class Solution {  
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