

JAVA.LANG.MATH.ULP METHOD

http://www.tutorialspoint.com/java/lang/math_ulp_double.htm

Copyright © tutorialspoint.com

Description

The **java.lang.Math.ulp** method returns the size of an ulp of the argument. An ulp of a double value is the positive distance between this floating-point value and the double value next larger in magnitude. Note that for non-NaN x, $\text{ulp}(-x) == \text{ulp}(x)$. Special Cases:

- If the argument is NaN, then the result is NaN.
- If the argument is positive or negative infinity, then the result is positive infinity.
- If the argument is positive or negative zero, then the result is Double.MIN_VALUE.
- If the argument is Double.MAX_VALUE, then the result is equal to 2^{971} .

Declaration

Following is the declaration for **java.lang.Math.ulp** method

```
public static double ulp(double d)
```

Parameters

- **d** -- the floating-point value whose ulp is to be returned

Return Value

This method returns the size of an ulp of the argument

Exception

- **NA**

Example

The following example shows the usage of lang.Math.ulp method.

```
package com.tutorialspoint;

import java.lang.*;

public class MathDemo {

    public static void main(String[] args) {

        // get two double numbers numbers
        double x = 956.294;
        double y = 123.1;

        // print the ulp of these doubles
        System.out.println("Math.ulp(" + x + ")=" + Math.ulp(x));
        System.out.println("Math.ulp(" + y + ")=" + Math.ulp(y));
    }
}
```

Let us compile and run the above program, this will produce the following result:

```
Math.ulp(956.294)=1.1368683772161603E-13
Math.ulp(123.1)=1.4210854715202004E-14
```

Loading [Mathjax]/jax/output/HTML-CSS/jax.js