

JAVA.LANG.MATH.ULP METHOD

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

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Description

The **java.lang.Math.ulp(float)** returns the size of an ulp of the argument. An ulp of a float value is the positive distance between this floating-point value and the float 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 Float.MIN_VALUE.
- If the argument is $\pm$ Float.MAX_VALUE, then the result is equal to 2^{104} .

Declaration

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

```
public static float ulp(float f)
```

Parameters

- **f** -- 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 float numbers
        float x = 956.294f;
        float y = 123.1f;

        // print the ulp of these floats
        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(956.294f)=6.1035156E-5
Math.ulp(123.1f)=7.6293945E-6
```

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