

JAVA.MATH.BIGINTEGER.ISPROBABLEPRIME METHOD

http://www.tutorialspoint.com/java/math/biginteger_isprobableprime.htm

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Description

The **java.math.BigInteger.isProbablePrime(int certainty)** returns true if this BigInteger is probably prime, false if it's definitely composite. If certainty is ≤ 0 , true is returned.

Declaration

Following is the declaration for **java.math.BigInteger.isProbablePrime** method

```
public boolean isProbablePrime(int certainty)
```

Parameters

- **certainty** - a measure of the uncertainty that the caller is willing to tolerate: if the call returns true the probability that this BigInteger is prime exceeds $(1 - 1/2^{\text{certainty}})$. The execution time of this method is proportional to the value of this parameter.

Return Value

This method returns true if this BigInteger is probably prime, false if it's definitely composite.

Exception

- NA

Example

The following example shows the usage of **math.BigInteger.isProbablePrime** method

```
package com.tutorialspoint;

import java.math.*;

public class BigIntegerDemo {

    public static void main(String[] args) {

        // create 3 BigInteger objects
        BigInteger bi1, bi2, bi3;

        // create 3 Boolean objects
        Boolean b1, b2, b3;

        // assign values to bi1, bi2
        bi1 = new BigInteger("7");
        bi2 = new BigInteger("9");

        // perform isProbablePrime on bi1, bi2
        b1 = bi1.isProbablePrime(1);
        b2 = bi2.isProbablePrime(1);
        b3 = bi2.isProbablePrime(-1);

        String str1 = bi1 + " is prime with certainty 1 is " + b1;
        String str2 = bi2 + " is prime with certainty 1 is " + b2;
        String str3 = bi2 + " is prime with certainty -1 is " + b3;

        // print b1, b2, b3 values
        System.out.println( str1 );
        System.out.println( str2 );
        System.out.println( str3 );
    }
}
```

```
}
```

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

```
7 is prime with certainty 1 is true  
9 is prime with certainty 1 is false  
9 is prime with certainty -1 is true
```

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