

```
public class Main {  
    public static void main(String[] args) {  
        System.out.println(StrictMath.cbrt(4.4));  
    }  
}
```

```
target=Main  
classpath=.
```

Applying JPF

```
JavaPathfinder core system v8.0 (rev 29+) - (C) 2005-2014 U
```

```
===== syst
```

```
Main.main()
```

```
===== sear
```

```
===== erro
```

```
gov.nasa.jpf.vm.NoUncaughtExceptionsProperty
```

```
java.lang.UnsatisfiedLinkError: cannot find native java.lan
```

```
  at java.lang.StrictMath.cbrt(no peer)
```

```
  at Main.main(Main.java:6)
```

```
...
```

```
I
```

- Generate the native peer class:

```
java -cp /cs/fac/packages/jpf/jpf-core/build/jpf.jar \  
gov.nasa.jpf.tool.GenPeer -m -a java.lang.StrictMath
```

- Delete all methods but `cbirt__D__D`.
- Delete the method body of `cbirt__D__D`.
- Implement the method body of `cbirt__D__D`:

```
System.out.println("native peer class");  
return Strictmath.cbirt(v0);
```

- Implement peer class skeleton:

```
package java.lang;
```

```
public class StrictMath {  
    public static double cbrt(double a) {  
        System.out.println("peer class");  
    }  
}
```

- Model the behaviour of `cbrt` in Java.

```
final double EPSILON = 0.0000001;
double xOld;
double xNew = 1.0;
do {
    xOld = xNew;
    xNew = 1.0 / 3.0 * (a / xOld * xOld + 2 * xOld);
} while (Math.abs(xOld - xNew) < EPSILON);
```