

# JUnit: The Calculator Example Continued.

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## 1 JUnit

JUnit is a framework for writing unit tests for Java software.

The purpose of this lab is for you to try out JUnit.

This lab assumes you have done the Calculator Example.

## 2 Create a JUnit Test Class

1. I like to keep my unit tests apart from the source code proper. Right click on the project and select New / Source Folder. Call it “testsrc”.
2. Within the new folder create a package “calculator” using New / Package
3. Within this package, create a new JUnit Test using New / JUnit Test Case
  - Check “New JUnit 4 test”
  - Name it “TestModel”
  - If there is a link “Click here to add JUnit 4 to the build path and open the build path dialog”, then click on the link. Then click on the Ok button of the Build Path dialog.
  - Click on Finish.
  - The new test class will show up in the editor.

## 3 Add a test method

- Add the following method to the `TestModel` class.

```
@Test public void testEnter() {  
    Model model = new Model() ;  
    model.setPrecision(4) ;  
    model.digit(1) ; model.digit(2) ; model.digit(3) ;  
    model.operation(Op.EQUAL) ;  
    assertEquals("321.0000", model.getResult() ) ;  
}
```

(By the way, the `@Test` part is an “annotation” which helps the JUnit framework to identify this method as a test method.)

- Add the following import directives at the top of the `TestModel.java` file.

```
import org.junit.Test;  
import static org.junit.Assert.*;
```

(By the way the static import brings the static members of a class into the scope.)

- Save the file. Check that there are no errors.

## 4 Run your test

- In the Package Explorer, right click on `TestModel.java`. Select Run As / JUnit Test.
- What happens?
- Try changing “321” to “123” and rerun the test.

## 5 Carrying on

Add more test methods to the `TestModel` class.

How many bugs in my code can you find?

Create some test cases for abilities that have not yet been added to the `Model` class. For example support for exponentiation, or scientific notation. Then add those facilities and run the tests.