

## JUnit Testing

JUnit is a unit testing framework used in Java... Since JUnit is open source, programs such as NetBeans can utilize its suite of testing products, which can result in an effective way to test your code outputs against matrices developed for each use case.

JUnit tests can be run automatically and provide immediate feedback. JUnit is actually a Java object and can be imported using the org.junit package.

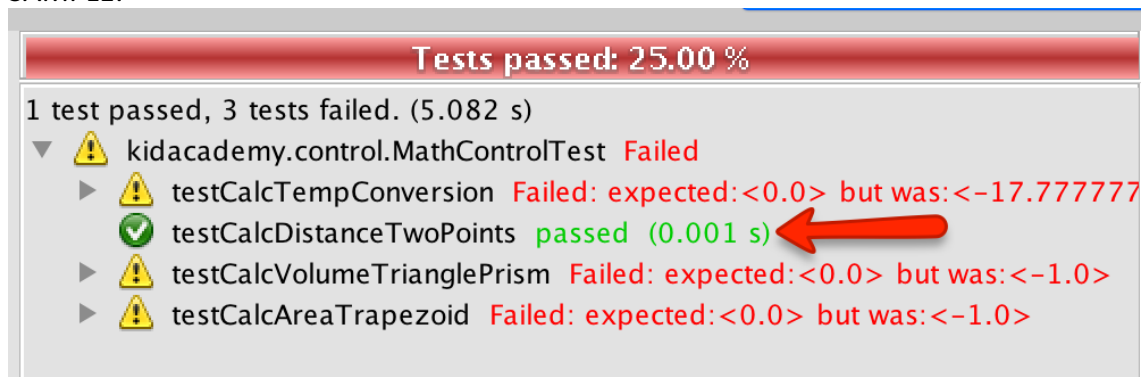
Test methods must be annotated by the @Test annotation.

SAMPLE:

```
@Test
public void testCalcDistanceTwoPoints() throws Exception {
    System.out.println("calcDistanceTwoPoints Unit 1 Test");
    double x1 = 10.0;
    double x2 = 20.0;
    double y1 = 5.0;
    double y2 = 15.0;
    MathControl instance = new MathControl();
    double expResult = 14.14213562;
    double result = instance.calcDistanceTwoPoints(x1, x2, y1, y2);
    assertEquals(expResult, result, 0.00000001);
}
```

The JUnit assertEquals function passes in an expected value, the actual value, and a precision factor for decimal places. If all three conditions are met, a “success” will be passed and the unit test will pass.

SAMPLE:



If the conditions are not met, a failure message will appear and provide a reason..

SAMPLE:

```
expected:<212.1320344> but was:<70.71067811865476>  
junit.framework.AssertionFailedError  
    at  
kidacademy.control.MathControlTest.testCalcDistanceTwoPoints(MathControlTest.  
java:94)
```

JUnit does provide a wide variety of assertion, I would recommend reviewing them here:  
<http://junit.org/junit4/javadoc/4.8/org/junit/Assert.html>