# Exercise 4: Arrange-Act-Assert (AAA) Pattern, Test Fixtures, Setup and Teardown Methods in JUnit

**Scenario:** You need to organize your tests using the Arrange-Act-Assert (AAA) pattern and use setup and teardown methods.

**CalculatoAAATest.java:**

package com.example;

import static org.junit.Assert.\*;

import org.junit.After;

import org.junit.Before;

import org.junit.Test;

public class CalculatoAAATest {

private Calculator calculator;

*@Before*

public void setUp() {

// Arrange phase common to all tests

calculator = new Calculator();

System.*out*.println("Setting up test...");

}

*@After*

public void tearDown() {

// Clean up after each test

calculator = null;

System.*out*.println("Tearing down test...");

}

*@Test*

public void testAddition() {

int result = calculator.add(5, 3);

*assertEquals*("5 + 3 should equal 8", 8, result);

}

*@Test*

public void testSubtraction() {

int result = calculator.subtract(10, 4);

*assertEquals*("10 - 4 should equal 6", 6, result);

}

*@Test*

public void testMultiplication() {

int result = calculator.multiply(7, 3);

*assertEquals*("7 \* 3 should equal 21", 21, result);

}

*@Test*

public void testDivision() {

double result = calculator.divide(15, 3);

*assertEquals*("15 / 3 should equal 5", 5.0, result, 0.001);

}

}

**Output:**

