**FactorialCalculatorTest.java**

**package** com.example;

**import** org.junit.Before;

**import** org.junit.After;

**import** org.junit.Test;

**import** **static** org.junit.Assert.\*;

**public** **class** FactorialCalculatorTest {

**private** FactorialCalculator calc;

@Before

**public** **void** setUp() {

System.***out***.println("Setting up factorial calculator...");

calc = **new** FactorialCalculator();

}

@After

**public** **void** tearDown() {

System.***out***.println("Cleaning up...");

calc = **null**;

}

@Test

**public** **void** testFactorialOfZero() {

// Arrange

**int** input = 0;

// Act

**int** result = calc.factorial(input);

// Assert

*assertEquals*(1, result);

}

@Test

**public** **void** testFactorialOfPositiveNumber() {

// Arrange

**int** input = 5;

// Act

**int** result = calc.factorial(input);

// Assert

*assertEquals*(120, result); // 5! = 120

}

@Test(expected = IllegalArgumentException.**class**)

**public** **void** testFactorialOfNegativeNumber() {

// Arrange

**int** input = -3;

// Act

calc.factorial(input); // Should throw exception

// Assert — handled by expected = ...

}

}





