# Lesson 04 - Testing Code

## Exercise 01

### Task 01

Using the test data and the code provided, run this test in repl.it and fill in the actual result and state whether this test passed or failed.

**Title:** Testing the area of a triangle

**Description:** We are testing the area of a triangle formula using Python. The aim of this test is to make sure that we have used the correct formula and that the formula returns the expected result.

**Test data:**

```
1  base_of_triangle = 30
2  height_of_triangle = 10
```

**Pre-conditions:** Our code from the code section must run without errors.

**Test steps:**

· Navigate to repl.it and create a new Python program.

· Copy the code from the code section and paste it into your newly created repl.

· Add the given test data into the base_of_triangle and height_of_triangle variables.

· Run the program.

· Note the output that is generated by the program.

· Fill in the Actual result field on this page.

**Expected result:** 150.0

**Actual result:**

**Pass or fail:**

### Code

```
1  base_of_triangle =
2  height_of_triangle =
3  area_of_triangle = (height_of_triangle * base_of_triangle) / 2
4  print(area_of_triangle)
```

## Task 02

Name one reason why software testing is important.

## Task 03

Talk a little bit about one example of where improper software testing lead to disaster.

# Exercise 02

## Task 01

Below, you are given 2 variables as test data. You must test them to make sure they output the expected values. If they do not, you must try and fix the equations until the actual results match the expected results. You will then use the corrected variables to find the volume of a sphere.

**Test Data**

```
1  pi = 12.5663706144 * 25 / 91 + 9
2  radius = 17 + 23 / 8
3  volume_of_sphere = (4/3 * pi) * radius ** 3
```

Pre-conditions: Our code must run without errors.

Test steps:

· Navigate to repl.it and create a new program.

· Copy and paste the pi, radius, and volume_of_sphere test data variables

· Print out the pi and radius and volume_of_sphere variables using the print function and note the values that are output in the "Actual result" heading

```
1  print(pi)
2  print(radius)
3  print(volume_of_sphere)
```

· Using the pedmas/bomdas order of operations, change the equations to make the variables hold the *expected results.*

· Note down the new equations for pi and radius in the *"New equations"* heading

· Check that the output for the volume_of_sphere matches the volume_of_sphere expected result.

**Expected Result**

```
1  pi = 3.14159265359
2  radius = 5
3  volume_of_sphere = 523.5987755983333
```

**Actual Result**

```
1  first_variable =
2  second_variable =
3  volume_of_sphere =
```

**New Equations**

```
1  pi =
2  radius =
```