

Main and the test-suite were compiled and run as shown below.



Compilation:

```
dedjo@Laptop-Kyle MINGW32 ~/esp/ESP8266_RTOS_SDK/lab1/q2/code
$ gcc src/main.c src/calc.c -I./src -o main.exe

dedjo@Laptop-Kyle MINGW32 ~/esp/ESP8266_RTOS_SDK/lab1/q2/code
$ gcc test/Testcalc.c src/calc.c unity/src/unity.c -I./src -I./unity/src -o testcalc.exe

dedjo@Laptop-Kyle MINGW32 ~/esp/ESP8266_RTOS_SDK/lab1/q2/code
$ |
```

Resulting in the following files to be created

| | | | |
|--|--------------------|-------------|--------|
|  main.exe | 10/2/2025 11:10 PM | Application | 140 KB |
|  testcalc.exe | 10/2/2025 11:10 PM | Application | 159 KB |

Running:

1) main.exe

```
dedjo@Laptop-Kyle MINGW32 ~/esp/ESP8266_RTOS_SDK/lab1/q2/code
$ ./main
'10 + 2 = 12'
'10 - 2 = 8'
'10 * 2 = 20'
'10 / 2 = 5'
'10 = 0'
'10 power two = 100'
'10 power three = 1000'
'-14 is true'
```

Where the last displayed output used the negnum function.

2) testcalc.exe

```
dedjo@Laptop-Kyle MINGW32 ~/esp/ESP8266_RTOS_SDK/lab1/q2/code
$ ./testcalc
test/Testcalc.c:13:test_add:FAIL: Expected 160 Was -96
test/Testcalc.c:143:test_sub:PASS
test/Testcalc.c:144:test_mul:PASS
test/Testcalc.c:145:test_mul_overflow:PASS
test/Testcalc.c:146:test_mul_underflow:PASS
test/Testcalc.c:147:test_div:PASS
test/Testcalc.c:148:test_mod:PASS
test/Testcalc.c:149:test_power_two:PASS
test/Testcalc.c:150:test_power_two_overflow:PASS
test/Testcalc.c:151:test_power:PASS
test/Testcalc.c:152:test_is_greater:PASS
test/Testcalc.c:153:test_is_equal:PASS
test/Testcalc.c:154:test_is_smaller:PASS
test/Testcalc.c:155:test_fill_single_digit_positive_number:PASS
test/Testcalc.c:156:test_true_as_string:PASS
test/Testcalc.c:157:test_false_as_string:PASS
test/Testcalc.c:159:test_negnum:PASS

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17 Tests 1 Failures 0 Ignored
FAIL
```

Executing testcalc also displayed the outputs of the functions negnum and test_add for Question 2, Parts 1 and 2, respectively. The function negnum passed all its test cases successfully. However, test_add failed its test cases due to the use of 8-bit integers, which caused integer overflow at lower values than would occur with 16-bit integers.