Lab 3 10 Points

Write a MASM program to evaluate the following **mathematical expression without using multiplication (MUL)**:

Result = (A+B) x C -(D-E)

where:

- A, B, C, D, E are **DWORD (32-bit) memory variables.**
- **Multiplication will be replaced with addition-loop.**
- **Indirect addressing will be used for accessing variables.**

```
.data
    A DWORD 20
    B DWORD 10
    C DWORD 5
    D DWORD 50
    E DWORD 15
    Result DWORD ?

    ptrA DWORD A
    ptrB DWORD B
    ptrC DWORD C
    ptrD DWORD D
    ptrE DWORD E
```

***Tasks***

1. Use **indirect addressing** to access A, B, C, D, and E.
2. Compute:
    a. sumAB = A + B
    b. prodABC = sumAB * C (without using MUL)
    c. diffDE = D - E
    d. Result = prodABC - diffDE
3. Display the computed result. Use the irvine library to Display.

Test Data
For A = 20, B = 10, C = 5, D = 50, E = 15

**sumAB = 20 + 10 = 30**

***prodABC = 30 * 5 = 30 + 30 + 30 + 30 + 30 = 150 (using loop)***

***diffDE = 50 - 15 = 35***

***Result = 150 - 35 = 115***

https://csc.csudh.edu/mmccullough/asm/help/index.html

```
call DumpRegs
```

(Make sure you identify in which register is your result or you will lose 1 point)

Or use

**WriteHex PROC**

Writes an unsigned 32-bit hexadecimal number to standard output in 8-digit hexadecimal format.
Leading zeros are inserted if necessary.
This procedure is useful for printing the result of a multi-double-word precision arithmetic operation.

**Call args:** EAX = unsigned number to write

**Return arg:** None

**Example:**

```
      mov  eax,7FFFFh
      call WriteHex
```