Experiment 13

Aim:

To write an ARM Assembly Language to implement the equations

- $ax^2 + by^2$
- $6(x+y)+2z+4$

Tool Used: Keil uVision4

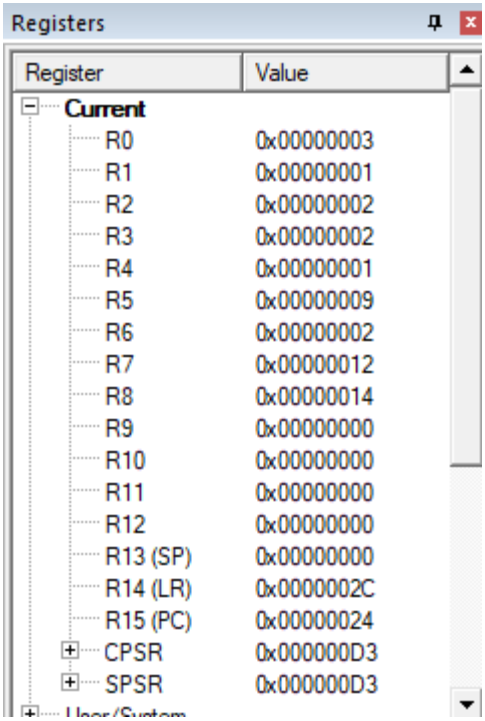
Equation 1 Code

```
 AREA PROGRAM, CODE, READONLY

 ENTRY
MAIN
        LDR R0, X
        LDR R1, Y
        LDR R2, A
        LDR R3, K
        MUL R4,R1,R1 ; y^2
        MUL R5,R0,R0 ; x^2
        MUL R6,R3,R4 ; ky^2
        MUL R7,R5,R2 ; ax^2
        ADDS R8,R7,R6 ; ax^2 + ky^2
        ADDCS R9,R9,#1
        SWI &11
 AREA PROGRAM, DATA, READONLY
X DCD &3
Y DCD &1
A DCD &2
K DCD &2
 END
```

Output:

The expected result 14 is displayed in R8.

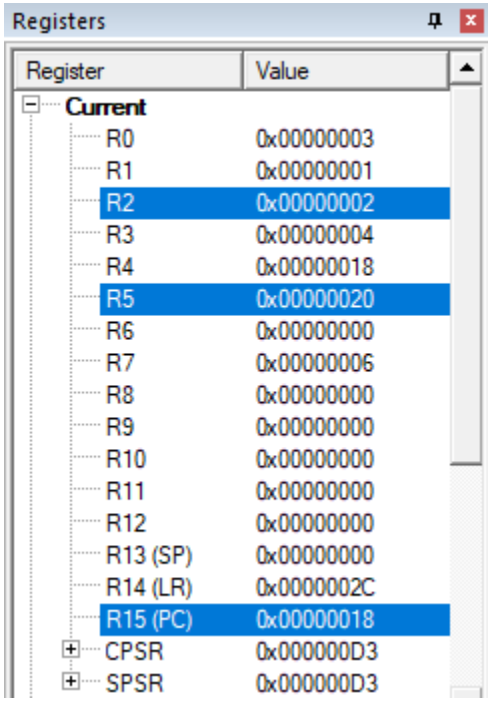


Equation 2 Code

```
 AREA PROGRAM, CODE, READONLY
 ENTRY
MAIN
        LDR R0, X
        LDR R1, Y
        LDR R2, Z
        MOV R7, #6;
        ADD R3,R0,R1 ; X+Y
        MUL R4,R3,R7 ; 6(X+Y)
        MOV R2,R2,LSL #1 ; 2Z
        ADDS R5,R2,R4 ; 6(X+Y) + 2Z
        ADDCS R5,R5,#5;
        ADDCC R5,R5,#4;
        SWI &11
 AREA PROGRAM, DATA, READONLY
X DCD &3
Y DCD &1
Z DCD &2
 END
```

Output:

The expected result 20 is displayed in R5.



Result:

The experiment to implement both the equations is found valid and correct.