


```
/* 
I pledge my honor that i have abided by the steven's honor pledge
problem 1
*/
```

```
.text
.global _start
.extern printf
```

```
_start:

    adr X9, i
    adr x10, g
    adr X11, f

    ldr x9,[x9]
    ldr x10,[x10]

    sub X9, X9, #4
    CBZ X9, Else //if equal 0

    sub x10, x10, #24
    str x10 , [x11]
    adr x0, msg
    ldr x1, [x11]
    BL printf

    MOV X0, #0
    MOV W8, #93
    SVC #0
```

```
Else:

    adds x10, x10, #12
    str x10 ,[x11]
    adr x0, msg
    ldr x1, [x11]
    BL printf

    MOV X0, 0
    MOV W8, 93
    SVC #0
```

```
.data

i: .quad 4
g: .quad 4
f: .quad 4
msg: .ascii "f = %d\n\0"
```

```
.end
```

```

ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-as lab6pt1.s -o lab6pt1.o
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-ld lab6pt1.o -o lab6pt1 -lc
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ qemu-aarch64 -L /usr/aarch64-linux-gnu/ lab6pt1
f = 16
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ 

```

```

/* Nicholas H Mohamed

```

```

I pledge my honor that i have abided by the steven's honor pledge

```

```

problem 2

```

```

*/

```

```

.text

```

```

.global _start

```

```

.extern printf

```

```

_start:

```

```

    adr X9, a

```

```

    adr x10, b

```

```

    adr X11, c

```

```

    ldr x9,[x9]      //a

```

```

    ldr x10,[x10]    //b

```

```

    ldr x12, [x11]   //c

```

```

    ADD X9, X9, X10  //add a + b

```

```

    SUB X9, X9, #4   //sub a + b from 4

```

```

    CBZ X9, Else     //check if its 0

```

```

    MOV X12, #-12

```

```

    STR x12, [x11]

```

```

    ADR X0, msg

```

```

    LDR X1, [X11]

```

```

    BL printf

```

```

    MOV X0, #0

```

```

    MOV W8, #93

```

```

    SVC #0

```

```

Else:

```

```

    MOV X12, #13

```

```

    STR X12, [X11]

```

```

    ADR X0, msg

```

```

    LDR X1, [X11]

```

```

    BL printf

```

```

    MOV X0, 0

```

```

    MOV W8, 93

```

SVC #0

.data

a: .quad 2
b: .quad 2
c: .quad 4
msg: .ascii "c = %d\n\0"

.end

```
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-as lab6pt2.s -o lab6pt2.o
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-ld lab6pt2.o -o lab6pt2 -lc
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ qemu-aarch64 -L /usr/aarch64-linux-gnu/ lab6pt2
c = 13
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$
```

/* Nicholas H Mohamed

I pledge my honor that i have abided by the steven's honor pledge
problem 3

*/

.text

.global _start

.extern printf

_start:

ADR X9, i
LDR X9, [X9]
ADR X1, holder
LDR X1, [X1]

Loop: CBZ X9, DONE

ADD X1,X1, X9
SUB X9, X9, #1
B Loop

DONE:

ADR X0, msg
BL printf

MOV X0, 0
MOV W8, 93
SVC #0

.data

i: .quad 10
holder: .quad 0
msg: .ascii "%d\n\0"

.end

```
[ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-as lab6pt3.s -o lab6pt3.o
[ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ aarch64-linux-gnu-ld lab6pt3.o -o lab6pt3 -lc
[ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ qemu-aarch64 -L /usr/aarch64-linux-gnu/ lab6pt3
55
ubuntu@primary:~/Home/Desktop/Year2/CS382/Lab6$ █
```