HW3 5 & 6

Question 5

```
Function:

    addi sp, sp, -4 # Drop stack pointer by 4
    sw ra, 0(sp) # Store return address
    addi sp, sp, -4 # Drop stack pointer by 4
    sw a0, 0(sp) # Store arguments

    addi s1, s1, 0 # int sum = 0
    addi s2, s2, 0 # int i = 0

Loop:
    blt s3, s2, EndLoop # Skip Loop
    lw a0, 0(sp) #load the value previously saved
    slli t0, s2, 2 #mulval by 4
    add a0, a0, t0

    add a1, x0, s2 # put i in a1
    jal g # make the call

    add s1, s1, a0 # Save result in s1

    addi s2, s2, 1 # i += 1
    bne x0, x0, Loop # Go to Loop
EndLoop:
    li a7, 4 # Load print statment
    add a0, s2, zero #stage sum
    ecall                # make the call
EndFunction:
```

Question 6

```
msort:
addi sp, sp, -4 #drop SP by 4
sw ra, 0(sp) # store the return address
addi sp, sp, -8 #drop SP by 4
sw a0, 4(sp) #store 256 bit array in sp
```

```
sw a1, 0(sp) #store n in sp

addi sp, sp, -1024 # drop by 1024

addi t0, x0, 1

leq a1, t0, Endmsort # if n<=1 return

# n1 = n / 2
srli t1, a1, 1

# msort d, n1
lw a1, t1
jal msort

# &d[n1]
lw a0, t1(sp)
#n - n1
lw t0, 1024(sp)
sub a1, t0, t1
jal msort

add a3, x0, a0
add a4, x0, a1
lw t0, 0(sp)
add a0, a0, t0
lw t1, 1024(sp)
add a1, x0, t1
jal merge

add a0, x0, a1
add a1, x0, a0
lw t0, 1028(sp)
add a2, x0, t0
jal copy

Endmsort:
```