Question #3

a.) main:
```
addi $sp, $sp, -4        0X0040 0000
sw   $ra, 0($sp)         0X0040 0004
lw   $a0, x              0X0040 0008
lw   $a1, y              0X0040 0010
jal diff                 0X0040 0018
lw $ra, 0($sp)           0X0040 001C
addi $sp, $sp, 4         0X0040 0020
Jr $ra                   0X0040 0024
```

diff:
```
Sub $v0, $a0, $a1  0X0040  0028
Jr $ra             0X0040  002C
```

b.)

Label	Address
main	0X004 00000
diff	0X004 00028
x	0X100 1 0000
y	0X1001000

*assuming x
in dynamic
data y

My Work—

C. addi $sp, $sp, -4

8	29	29	-4
001000	11101	11101	1111 1111 1111 1100
OP	rs	rt	imm

OX 23BDFFFC

Sw $ra, 0($sp)

lw $a0, x

lw $a1, y

	OP	rs	rt	imm
sw	43	29	31	0000 0000 0000 0000
lw1	35	1?	4	0
lw2	35	1?	5	4
sw	101011	11101	11111	0000 0000 0000 0000
lw1	100011	00 0010	00100	0000 0000 0000 0000
lw2	100011	00 0001	00101	0000 0000 0000 0100
	OP	rs	rt	imm

Sw → 0XAFBF0000

lw1 → 0X8C240000

lw2 → 0X8C250004

Jal diff

0000 11,00 0001 0000 0000 0000 0000 1010

| op | address |

0X0C10000a

lw $ra, 0($sp)
addi $sp, $sp, 4

35	29	31	0	
8	29	29	4	
100011	11101	11111	0000 0000 0000 0000	
001000	11101	11101	0000 0000 0000 0100	
OP	rs	rt		

0X8FBF0000

0X23BD0004

Jr $ra^{31}

061000 0000000000000000000000000011111

op | address

0X200000F

Sub $v0, $a0, $a1

~~0~~ 0	4	5	2	0	34
000000	00100	00101	00010	00000	100010
op	rs	rt	rd		

0X00851022

NXT pg Answer

C.) Answer:

MIPS	Machine Code
addi $sp, $sp, -4	0X23BDFFFC
sw $ra, 0($sp)	0XAFBF0000
lw $a0, x	0X8C240000
lw $a1, y	0X8C250004
jal diff	0X0C100008
lw $ra, 0($sp)	0X8FBF0000
addi $sp, $sp, 4	0X23BD0004
jr $ra	0X2000000F
sub $v0, $a0, $a1	0X00851022
jr $ra	0X2000000F

D.)

Address	Segment
0XFFFFFFFC	Reserved
0X80000000	
0X7FFFFFFC	Stack↓ Dynamic Data heap↑
0X10010000	
0X1000FFFC	Static Data → Program var
0X10000000	
0X0FFFFFFC	Text → program instructions
0X00400000	
0X003FFFFC	Reserved
0X00000000	