## Exercise L7 Assembly

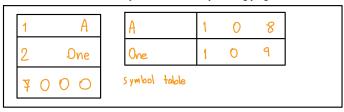
1. List the hexadecimal code for the following program (hand assemble it).

Hex		
Address	Label	Instruction
100		Load A
101		Add One
102		Jump S1
103	S2,	Add One
104		Store A
105		Halt
106	S1,	Add A
107		Jump S2
108	Α,	HEX 0023
109	One,	HEX 0001

## Hexadecimal codes

1108
3109
9106
3109
2108
000¥
3108
9103
0023
0001

2. What are the contents of the symbol table for the preceding program?



3. Given the instruction set for MARIE in this chapter, decipher the following MARIE machine language instructions. (Write the assembly language equivalent.)

```
a) 0010000000000111 \rightarrow 2007 \rightarrow 5tore 7
```

```
b) 1001000000001011 → 900 B → Jump B
```

```
c) 0011000000001001 -> 3009 -> Add 9
```

4. Write the following code segment in MARIE's assembly language: if X>1 then Y=X+X;

X=0; endif;

Y=Y+1;

Adress	Instructions	Comments
100	Load X	Load X to AC
101	Skipcond 800	Check if AC>1
102	Jump 107	If AC <= 1, Jump to 107
103	Add X	Add $x$ to AC, since AC has $x$ previously, adding another $x$ to get $x+x$
104	Store Y	Store the result to Y
105	Load 0	AC = O
106	Store X	X = AC
107	Load Y	AC = Y
108	Add 1	Plus 1 to AC
109	Store Y	Y = AC