1, 2.	Assembly Language			Machine Language Translation									
	Label	Instruction		Location	Hex	Binary							
		LDA X		0	05H								
		SUB Y		1	26H								
		STA X		2	35H								
		OUT		3	E0H								
		HLT		4	F0H								
	X:	78		5	4EH								
	Y:	1		6	01H								
	Instruction	PC	A	OUT	X	Y							
	LDA X	0	78	-	78	1							
	SUB Y	1	77	-	78	1							
	STA X	2	77	-	77	1							
	OUT	3	77	77	77	1							
	HLT	4	--	--									
3	Label	Instruction											
		LDA	counter										
	start	SUB	one										
		STA	counter										
		JAZ	done										
		JMP	start										
	counter	DAT 6											
	one	DAT 1											
	done	HLT											
4	Instruction	PC	A	OUT	Counter	One	Done						
	LDA counter	0	6	-	6	1	HLT						
	SUB one	1	5	-	6	1	HLT						
	STA counter	2	5	-	5	1	HLT						
	JAZ done	3	5	-	5	1	HLT						
	JMP start	4	5	-	5	1	HLT						
	SUB one	1	4	-	5	1	HLT						
	STA counter	2	4	-	4	1	HLT						
	JAZ done	3	4	-	4	1	HLT						
	JMP start	4	4	-	4	1	HLT						
	SUB one	1	3	-	4	1	HLT						
	STA counter	2	3	-	3	1	HLT						
	JAZ done	3	3	-	3	1	HLT						
	JMP start	4	3	-	3	1	HLT						
	SUB one	1	2	-	3	1	HLT						
	STA counter	2	2	-	2	1	HLT						
	JAZ done	3	2	-	2	1	HLT						
	JMP start	4	2	-	2	1	HLT						
	SUB one	1	1	-	2	1	HLT						
	STA counter	2	1	-	1	1	HLT						
	JAZ done	3	1	-	1	1	HLT						
	JMP start	4	1	-	1	1	HLT						
	SUB one	1	0	-	1	1	HLT						
	STA counter	2	0	-	0	1	HLT						
	JAZ done	HLT	0	-	0	1	HLT						
5	Label	Instruction											
		LDA	counter										
	sum	JAZ	done										
		ADD	total										
		STA	total										
		LDA	counter										
		SUB	one										
		STA	counter										
		JMP	sum										
	done	LDA	total										
		OUT											
		HLT											
	counter	DAT 3											
	total	DAT 0											
	one	DAT 1											
6	Instruction	PC	A	OUT	Counter	Total	One						
	LDA counter	0	3	-	3	0	1						
	JAZ done	1	3	-	3	0	1						
	ADD total	2	3	-	3	0	1						
	STA total	3	3	-	3	3	1						
	LDA counter	4	3	-	3	3	1						
	SUB one	5	2	-	3	3	1						
	STA counter	6	2	-	2	3	1						
	JMP sum	7	2	-	2	3	1						
	LDA counter	0	2	-	2	3	1						
	JAZ done	1	2	-	2	3	1						
	ADD total	2	5	-	2	3	1						
	STA total	3	5	-	2	5	1						
	LDA counter	4	2	-	2	5	1						
	SUB one	5	1	-	2	5	1						
	STA counter	6	1	-	1	5	1						
	JMP sum	7	1	-	1	5	1						
	LDA counter	0	1	-	1	5	1						
	JAZ done	1	1	-	1	5	1						
	ADD total	2	6	-	1	5	1						
	STA total	3	6	-	1	6	1						
	LDA counter	4	1	-	1	6	1						
	SUB one	5	0	-	1	6	1						
	STA counter	6	0	-	0	6	1						
	JMP sum	7	0	-	0	6	1						
	LDA counter	0	0	-	0	6	1						
	JAZ done	1	0	-	0	6	1						
	LDA total	8	6	-	0	6	1						
	OUT	9	6	-	0	6	1						
	HLT	10	--	--	--	--	--						
	Symbol Table		OP CODES		Meaning								
	Label	Address	LDA M	0000 (2)	A <- c(M)								
	X	5	ADD M	0001 (2)	A <- A + c(M)								
	Y	6	SUB M	0010 (2)	A <- A - c(M)								
			STA M	0011 (2)	c(M) <- A								
			JMP M	0100 (2)	PC <- M								
			JAZ M	0101 (2)	PC <- M if A == 0								
			OUT	1110 (2)	Out <- A								
			HLT	1111 (2)	Halt Execution								