

Programs

GilDev Breadboard Computer

Adder

ADDRESS	CONTENT	LABEL	INSTRUCTION	COMMENT
0000 0000	1110	start	INP	a = input()
0000 0001	0011		STA a	
0000 0010	1000 0000			
0000 0011	1110		INP	b = input()
0000 0100	0100		ADD a	a += b
0000 0101	1000 0000			
0000 0110	1101		OUT	output(a)
0000 0111	1000		JMP start	goto start
0000 1000	0000			
1000 0000		a		

Subtractor

ADDRESS	CONTENT	LABEL	INSTRUCTION	COMMENT
0000 0000	1110	start	INP	a = input()
0000 0001	0011		STA a	
0000 0010	1000 0000			
0000 0011	1110		INP	b = input()
0000 0100	0110		SUB a	a -= a b
0000 0101	1000 0000			
0000 0110	1101		OUT	output(a)
0000 0111	1000		JMP start	goto start
0000 1000	0000			
1000 0000		a		

Countdown until 0

ADDRESS	CONTENT	LABEL	INSTRUCTION	COMMENT
0000 0000	1110	start	INP	a = input()
0000 0001	0111	loop	SUI #1	input--
0000 0010	0001			
0000 0011	1101		OUT	output(a)
0000 0100	1100		JPZ start	if (a == 0)
0000 0101	0000			goto start
0000 0110	1000		JMP loop	goto loop
0000 0111	0001			

Multiplier

ADDRESS	CONTENT	LABEL	INSTRUCTION	COMMENT
0000 0000	1110	start	INP	a = input()
0000 0001	0011		STA total	total = a
0000 0010	1000 0001			
0000 0011	0011		STA amount	amount = a
0000 0100	1000 0010			
0000 0101	1110		INP	
0000 0110	0011		STA i	i = input()
0000 0111	1000 0000			
0000 1000	0001	loop	LDA i	
0000 1001	1000 0000			
0000 1010	0111		SUI #1	i--
0000 1011	0001			
0000 1100	1100		JEZ end	if (i == 0)
0000 1101	0001 1000			goto end
0000 1110	0011		STA i	
0000 1111	1000 0000			
0001 0000	0001		LDA total	
0001 0001	1000 0001			
0001 0010	0100		ADD amount	total += amount
0001 0011	1000 0010			
0001 0100	0011		STA total	
0001 0101	1000 0001			
0001 0110	1000		JMP loop	goto loop
0001 0111	0000 1000			
0001 1000	0001	end	LDA total	
0001 1001	1000 0001			
0001 1010	1101		OUT	output(total)
0001 1011	1111		HLT	
1000 0000		i		
1000 0001		total		
1000 0010		amount		

Multiplication tables from 1 to 10

ADDRESS	CONTENT	LABEL	INSTRUCTION	COMMENT
0000 0000	0010	start	LDI #1	
0000 0001	0001			
0000 0010	0011		STA inc	inc = 1
0000 0011	1000 0000			
0000 0100	1101	loop	OUT	output(inc)
0000 0101	0100		ADD inc	inc *= 2
0000 0110	1000 0000			
0000 0111	1011		JPC next	if (inc > 255)
0000 1000	1011			goto next
0000 1001	1000		JMP loop	goto loop
0000 1010	0100			
0000 1011	0001	next	LDA inc	
0000 1100	1000 0000			
0000 1101	0101		ADI #1	inc++
0000 1110	0001			
0000 1111	0011		STA inc	
0001 0000	1000 0000			
0001 0001	0111		SUI #11	Table up to 10
0001 0010	1011			
0001 0011	1100		JPZ start	if (inc == 11)
0001 0100	0000			goto start
0001 0101	0001		LDA inc	
0001 0110	1000 0000			
0001 0111	1000		JMP loop	goto loop
0001 1000	0100			
1000 000		inc		