Problem PA-2 (3 parts) Function and Stack

Part A The program `Chroma` calls a subroutine `Mystery`. Complete the program `Chroma` by adding MIPS code to correctly preserve appropriate registers before the `jal` by pushing them on the stack and to restore them after the subroutine call. Assume `Mystery` can modify any registers and that `A`, `B`, and `C` are globally defined arrays.

Chroma:	addi $1, $0, 256	# init index
Loop:	addi $1, $1, -4	# decrement index
	lw $2, A($1)	# load in current element of A
	lw $3, B($1)	# load in current element of B
	jal Mystery	# in: $2; out: $4
	sub $5, $0, $3	#L_A
	addi $5, $5, -1	#L_B
	and $6, $3, $4	#L_C
	and $7, $2, $5	#L_D
	or $8, $6, $7	#L_E
	sw $8, C($1)	#L_F
	bne $1, $0, Loop	
	jr $31	# return to caller

Part B How many words of static memory are read by `Chroma` and how many are written?

# words read:	# words written:

Part C Rewrite the instructions at lines L_A through L_F to optimize register usage.

		#
		#
		#
		#
		#
		#L_F