## **Arithmetic instructions**

Enter the following program. In "Debugger", "Select Tool", choose MPLAB SIM. Execute the program with "Step Over" button.

	LIST	P=18F4520			movlw	0
#include <p18f4520.inc></p18f4520.inc>					movwf	L_BYTE
		CONFIG OSC = 3	XT		movwf	H_BYTE
		CONFIG WDT =	OFF		addwf	mem1, W
		CONFIG LVP = 0	OFF		daw	
L_BYTE EQU 0					bnc	K_1
H_BYTE EQU 1					incf	H_BYTE, F
mem1	EQU 2			K_1	addwf	mem2, W
mem2	EQU 3				daw	
mem3	EQU 4				bnc	K_2
ORG 0x0000					incf	H_BYTE, F
	goto	Main		K_2	addwf	mem3, W
ORG 0x020					daw	
Main:	movlw	0x28			bnc	K_3
	movwf	mem1			incf	H_BYTE, F
	movlw	0x49		K_3	movwf	L_BYTE
	movwf	mem2		Here:	bra	Here
	movlw	0x99			<b>END</b>	
	movwf	mem3				

## **Answer Questions 1 and 2.**

Enter the following program. In "Debugger", "Select Tool", choose MPLAB SIM. Execute the program with "Step Over" button.

	LIST	P=18F4520		movf	number_1_L_byte, W
#include <p18f4520.inc></p18f4520.inc>				addwf	number_2_L_byte, W
	CONFIG	OSC = XT		daw	
	CONFIG	WDT = OFF		movwf	L_result
	CONFIG	LVP = OFF		movf	number_1_H_byte, W
L_result EQU 0				addwfc	number_2_H_byte, W
H_result EQU 1				daw	
number_1_L_byte EQU 2				movwf	H_result
number_1	number_1_H_byte EQU 3			bra	Here
number_2	number_2_L_byte EQU 4			END	
number_2	2_H_byte EQ	U 5			
ORG 0x0000					
	goto	Main			
	ORG 0x020				
Main:	movlw	0x69			
	movwf	number_1_L_byte			
	movlw	0x48			
	movwf	number_1_H_byte			
	movlw	0x47			
	movwf	number_2_L_byte			
	movlw	0x89			
	movwf	number_2_H_byte			

## **Answer Questions 3 and 4.**

Enter the following program. In "Debugger", "Select Tool", choose MPLAB SIM. Execute the program with "Step Over" button.

```
LIST
                    P=18F4520
                                                            movf
                                                                      number_1_L_byte, W
                                                                      number 2 L byte, W
          #include <P18F4520.INC>
                                                            subwf
                                                                      L result
                    CONFIG
                               OSC = XT
                                                            movwf
                    CONFIG
                               WDT = OFF
                                                                      number 1 H byte, W
                                                            movf
                              LVP = OFF
                                                                      number_2_H_byte, W
                    CONFIG
                                                            subwfb
L_result
                                                                      H result
          EQU 0
                                                            movwf
                                                                      Here
H result
          EQU 1
                                                  Here:
                                                            bra
number_1_L_byte EQU 2
                                                            END
 number_1_H_byte EQU 3
number 2 L byte EQU 4
number 2_H_byte EQU 5
          ORG 0x0000
                    Main
          goto
          ORG 0x020
Main:
          movlw
                    0x41
          movwf
                    number_1_L_byte
          movlw
                    0x98
          movwf
                    number_1_H_byte
          movlw
                    0x23
                    number 2 L byte
          movwf
          movlw
                    0x24
                    number_2_H_byte
          movwf
```

## **Answer Questions 5 and 6.**