Arithmetic instructions

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

```
        LIST    P=18F4520
        #include <P18F4520.INC>
                CONFIG  OSC = XT
                CONFIG  WDT = OFF
                CONFIG  LVP = OFF
L_BYTE  EQU 0
H_BYTE  EQU 1
mem1    EQU 2
mem2    EQU 3
mem3    EQU 4
        ORG 0x0000
        goto    Main
        ORG 0x020
Main:   movlw   0x28
        movwf   mem1
        movlw   0x49
        movwf   mem2
        movlw   0x99
        movwf   mem3
        movlw   0
        movwf   L_BYTE
        movwf   H_BYTE
        addwf   mem1, W
        daw
        bnc     K_1
        incf    H_BYTE, F
K_1     addwf   mem2, W
        daw
        bnc     K_2
        incf    H_BYTE, F
K_2     addwf   mem3, W
        daw
        bnc     K_3
        incf    H_BYTE, F
K_3     movwf   L_BYTE
Here:   bra     Here
        END
```

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
        #include <P18F4520.INC>
        CONFIG  OSC = XT
        CONFIG  WDT = OFF
        CONFIG  LVP = OFF
L_result EQU 0
H_result EQU 1
number_1_L_byte EQU 2
number_1_H_byte EQU 3
number_2_L_byte EQU 4
number_2_H_byte EQU 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
        movf    number_1_L_byte, W
        addwf   number_2_L_byte, W
        daw
        movwf   L_result
        movf    number_1_H_byte, W
        addwfc  number_2_H_byte, W
        daw
        movwf   H_result
Here:   bra     Here
        END
```

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
            #include <P18F4520.INC>
                        CONFIG      OSC = XT
                        CONFIG      WDT = OFF
                        CONFIG      LVP = OFF
 L_result   EQU 0
 H_result   EQU 1
 number_1_L_byte EQU 2
 number_1_H_byte EQU 3
 number_2_L_byte EQU 4
 number_2_H_byte EQU 5
            ORG 0x0000
            goto        Main
            ORG 0x020
Main:       movlw       0x41
            movwf       number_1_L_byte
            movlw       0x98
            movwf       number_1_H_byte
            movlw       0x23
            movwf       number_2_L_byte
            movlw       0x24
            movwf       number_2_H_byte
            movf        number_1_L_byte, W
            subwf       number_2_L_byte, W
            movwf       L_result
            movf        number_1_H_byte, W
            subwfb      number_2_H_byte, W
            movwf       H_result
Here:       bra         Here
            END
```

Answer Questions 5 and 6.