ICE 4M0 TUTORIAL #5: The STATUS Bits Name: _____

**Objective:**

To observe the changes of the STATUS bit Z, DC and C when certain instructions are performed.

**Procedure:**

1. For each **Sample Code** below, record the binary contents of the WREG and i registers, then record the status of the Z, DC and C bits for each block of code below. If a bit is not affected by the instruction, then record a N/A ("not affected"). The first one has been done for you. DO NOT use MPLAB to find the answer for you. Do this with only a pencil in hand (and a brain in head!)
2. Now that you have tried each **Sample Code**, verify your answers using MPLAB. Code each sample separately simulate using "Step Into" with *MPLAB SIM /Watch* window. Ensure you have the STATUS register open so that you can view the Z, DC and C bits.
3. **Be sure to add the 'goto $' and 'end' lines of code.**

| Sample Code | WREG | i | Z bit | DC bit | C bit |
|---|---|---|---|---|---|
| movlw b '1000 0000'<br>addlw b '1000 0000' | 0000 0000 | N/A | 1 | 0 | 1 |
| movlw b '1011 1000'<br>addlw b '0100 0111' | | | | | |
| movlw b '0000 1000'<br>addlw b '1000 1100' | | | | | |
| movlw b '1111 1111'<br>sublw b '1111 1111' | | | | | |
| movlw b '1111 1111'<br>andlw b '1111 0000' | | | | | |
| movlw b '1111 1111'<br>xorlw b '1111 0000' | | | | | |
| movlw b '1111 1111'<br>iorlw b '1111 0000' | | | | | |
| movlw b '1111 1111'<br>movwf i<br>comf i, w | | | | | |
| movlw b '1000 0000'<br>movwf i<br>rlf i,w | | | | | |
| movlw b '0000 0001'<br>movwf i<br>decf i, f | | | | | |

**Conclusions:**

1. List the instructions in the instruction set that affect the status of the DC bit?

2. List the instructions in the instruction set which affect the status of the C bit?