

**EE 308 – Homework 1**

1. Explain what the command BF 2010 20FE AA of the D-Bug 12 monitor does. (You may need to look in the manual [Reference Guide for D-Bug12.](#))

2. Convert your name to ASCII. For example, if your name is "Jane Smith", the answer will be become:

J	a	n	e		S	m	i	t	h
0x4A	0x61	0x6E	0x65	0x20	0x53	0x6D	0x69	0x74	0x68

3. Consider the following MC9S12 program:

```
; MC9S12 demo program
; This is a program to add four numbers in memory from $1000 through $1003,
; divide the sum by four, and store the result in address $1004
```

```
prog:      equ    $2000      ; Starting address from program
data:      equ    $1000      ; Starting address for data
           org    prog       ; Set initial program counter value

           ldaa   input1     ; A =
           adda   input2     ; A =
           adda   input3     ; A =
           adda   input4     ; A =
           asra                   ; A =
           asra                   ; A =
           staa   average ;   ; A =
           swi

           org    data       ; Put data starting at this location
input1:    dc.b   $2C        ; First number
input2:    dc.b   $3F        ; Second number
input3:    dc.b   $42        ; Third number
input4:    dc.b   $35        ; Fourth number
average:   ds.b   1         ; Reserve one byte for results
```

What is the value of Register A after each instruction of the program has executed? (e.g., after the instruction ldaa input1, Register A will have a 0x2C in it.) You do not need to consider the swi instruction.

4. What is the addressing mode for each of the following instructions:

- ldaa input4
- asra

5. What are the address of RAM in the MC9S12 which are available to you for your program and data?