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?