You will need to refer to the M16C/20/60 Software Manual and M16C C Language Programming Manual to complete this assignment. They are available online through the documentation contained in the SKP16C26 directories link on the course home page.

0. How long did this homework take you?

1. How many bytes are required to represent each of the following data types?
   a. char
   b. int
   c. short
   d. long
   e. float
   f. double
   g. long double
2. What is the shortest variable which can hold the integer 1000?
3. What is the shortest variable which can hold the integer 200?
4. Is a variable of type int signed or unsigned?
5. What modifier should be used if a variable's value will never change when the program executes?
6. What modifier should be used if a variable may be changed by an interrupt outside of normal program execution?
7. List the following C operators in order from highest to lowest priority (precedence):
   && -> + ! || += == & (monadic) & (diadic) %
8. What is the value resulting from the C expression 0x47 ^ 0x81?
9. Consider the following C program. Identify to which section(s) each variable is allocated.

```
int a;                              a.
int b=2004;                         b.
void function1(int arg1) {
     int c;                         c.
     ....                           d.
}                                   e.
void function2(int arg2) {          f.
     static int d;
     ...
}
void main(void) {
     int e;
     int f=10;
}
```

10. Write M16C assembly code to implement the following C code. Assume X is in R1, Y is in R2, and Z is in R3. All data is 16 bits.

```
if (X==38)
     Y = 4; /* code a */
else
     Z = X; /* code b */
```