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CPE 490 Homework # 2

1. Write a C function using a standard math library to calculate the decibel equivalent of a double floating point number. If the number is x then the decibel equivalent is:

Dx = 20 log10 (x)

Make sure to show the include statement that is needed in the file of the function. Hint: see the 16 bit language tools library documentation in Blackboard in the lab information folder under Microchip Documents.

<math.h>

double hw2LogQuestion ( double x)

{

double result = log10 (x);

return double;

}

1. Using the function written above how could you take long integer Y and find its decibel equivalent i.e. show the code that will take Y and find its decibel equivalent using Q1 function.

<math.h>

Double hw2LogQuestion (double x);

Main ()

{

long int Y;

double result = 0;

result = hw2LogQuestion ((double)Y);

}

1. Write a function called **max** that returns the value of the larger of two integer arguments.

int max (int a, int b)

{

int result = 0;

if ( (a - b) > 0)

result = a;

else if ((a – b) == 0)

result = a; // Return a if they are equal

else

result = b;

return result;

}

1. List the 5 built-in data types in C. A built in type are the types that can be declared in one word with no modifier.   
   (hint consult the compiler manual on blackboard)

I know this is more than 5, but I’m pretty sure this is right.

Char, short, int, double, long, float, double

1. Of these 5 built-in types what types can take the modifier unsigned?

Char, short, int, long.

1. Evaluate the following expressions as true or false
   1. 10 == 9+1 [true]
   2. 10 && 8 [true]
   3. 8 || 0 [true]
   4. 0 && 0 [false]
   5. Let x=10; y=9;

X >= 8 && y<= x [true]

1. In the following code after mul returns what is the value of the variable x,y, and c?

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HW question 5

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//Include 33FJ256GP710A header file, for all processor-specific declarations

#include <p33FJ256GP710A.h>

unsigned int x,y,c; //specify counter as unsigned character

int main (void) //main function starts here

{

while (1)

{

x=5;

y=6;

c = mul(x,y);

}

}

int mul(int c, int d)

{

int x;

x=d;

return (c\*d);

}

Answer: x = 5, y = 6, and c = 30.