Assignment 1

Due Saturday, July 13th, 2013

This assignment is worth 4% of your grade.

Submit your code on cuLearn in ONE file called a1.c Within this file, separate your answers to each question with a comment that looks like this:

```
 /*
================================================
              Question X
================================================
  */
```

(Replace X with the number of the question you are answering.)

Your code must complie, otherwise the assignment will be graded with mark 0. For that reason, if you run out of time and/or one of your answers contains code that does not compile, then comment out that section of code.

Questions:

1. Prompt the user to enter weight in pounds and have your program print the weight in kilograms.

   The output of your program could look something like this:

   ```
   Your program:  Enter your weight in pounds:
   User:  140.5
   Your program:  Your weight in pounds is 140.5 which equals ?  kg.
   ```

2. Prompt the user to enter the length in feet and inches and have your program print the length expressed in centimeters.

   Example:

   ```
   Your program:  Enter two numbers for the length (the first in feet and the second in inches)
   and press enter.
   User:  10 0
   Your program:  10 feet and 0 inches equals ?  cm.
   ```

3. Prompt the user to enter weight (in pounds) and height (in inches), and have your program print body-mass-index (BMI). See this wikipedia article for information on how to compute BMI.

   `http://en.wikipedia.org/wiki/Body_mass_index`

4. Have your program draw an ASCII art (by using printf command) where in 3 locations in the drawing the program will put the 3 characters that it received from the user.

For example here is an output of a program that draws an ASCII art that is a cat and where the user entered characters 'A', 'A', 't' and they were placed in the drawing.

http://cwd.co.uk/asciimoo/public/images/1_postcard_small_1232402329.png

If the user entered characters 'B', 'r', '2' instead, then 'B', 'r', '2' should be displayed in the locations of 'A', 'A', 't' in the above drawing.

If you want to see more example of ASCII art, google "small ascii art". Your art does not have to be artsy or complicated. But, for example, do not make it simpler than two nested rectangles.

5. Prompt the user to enter one non-negative integer x and have your program print a pair of integers (y,z) such that $x = 12 * y + z$.

   Examples:
   user: 74
   your program: (6, 2)

   user: 70
   your program: (5, 10)

6. Prompt the user to enter one non-negative number x and have your program print a pair of numbers (y,z) such that $x = y + z/12$ and y is an integer and z non-negative number smaller than 12 .

   Examples:
   user: 6.5
   your program: (6, 6.0)

   user: 5.25
   your program: (5, 3.0)

7. Write a personalized limerick maker by prompting the user to enter a four letter name and five letter city and then prints a limerick that includes that name and city. You can make up your own limerick or adapt one from this collection. http://www.loonylimericks.com/ (Note, though, that many of these are not suitable for this question since they use the name or city as part of the rhyme.)

   Example:
   your program: Enter four letter name:
   user: John
   your program: Enter five letter city:
   user: Dover
   your program:
   John had funny funny hair
   With tons and tons to spare
   John's clippings made a wig
   It was very big
   And caused the townsfolk of Dover to stare

8. Prompt the user to enter coordinates of 4 points. Your program should then

   a) print the midpoint of the line segment between the first two points.
   b) print the intersection point of the line through the first two points and the line through the last two points. If the two lines do not cross, i.e., if they are parallel, your program should print a statment indicating that.