COP 2930 - Individual Programming Assignment #2

Due date: Please consult WebCourses for your due date/time

Objectives

1. To give students practice at typing in, compiling and running simple programs.
2. To learn how to read in input from the user.
3. To learn how to use assignment statements and arithmetic expressions to make calculations

Problem A: Rectangle Area, Perimeter (rectangle.py)

Write a program that asks the user to enter the length and width of a rectangle, then uses this information to print out both the area and perimeter of the rectangle.

Input Specification

Note: It is guaranteed that whoever uses your program will adhere to these specifications. This means that you do NOT have to check for them!

The length and width entered will be integers in between 1 and 100, inclusive.

Output Specification

Produce two lines of output with the following format:

```
area = A
perimeter = P
```

where A is the desired area and P is the desired perimeter.

Output Sample

Below is one sample output of running the program. **Note that this sample is NOT a comprehensive test.** You should test your program with different data than is shown here based on the specifications given above. In the sample run below, for clarity and ease of reading, the user input is given in *italics* while the program output is in **bold**. (Note: When you actually run your program no bold or italics should appear at all. These are simply used in this description for clarity's sake.)

Sample Run #1

Enter the length of the rectangle.
5
Enter the width of the rectangle.
9
area = 45
perimeter = 28

Problem B: Printing Area (printing.py)

You are a typesetter and need to determine how many pages it will take to print a book. Each page has some dimension in inches and a default of one inch margins on all sides. For example, for a page that is 10 inches by 12 inches, the printable area of the page is actually 8 inches by 10 inches, which is 80 square inches. Given the amount of printable area needed to print a book, and the author's desired dimensions of the page, write a program to calculate the number of pages necessary to print the book.

Input Specification

Note: It is guaranteed that whoever uses your program will adhere to these specifications. This means that you do NOT have to check for them!

The printable area (in square inches) needed to print the book will be a positive integer in between 1 and 1,000,000, inclusive.

The length and width of a page will be an integer in between 4 and 20, inclusive.

Output Specification

Produce a single like of output with the following form:

```
The book will take P pages to print.
```

where P is the number of pages necessary to print the book.

Output Sample

Below is one sample output of running the program. **Note that this sample is NOT a comprehensive test.** You should test your program with different data than is shown here based on the specifications given above. In the sample run below, for clarity and ease of reading, the user input is given in *italics* while the program output is in **bold**. (Note: When you actually run your program no bold or italics should appear at all. These are simply used in this description for clarity's sake.)

Sample Run #1

What's the area needed for printing in square inches?
1000
How long is a single page in inches?
10
How wide is a single page in inches?
8
The book will take 21 pages to print.

Sample Run #2

```
What's the area needed for printing in square inches?
11934
How long is a single page in inches?
15
How wide is a single page in inches?
11
The book will take 102 pages to print.
```

Problem C: Python Turtle (initials.py)

Use the Python Turtle to draw your initials.

Restrictions

Please IDLE 3.6 (or higher) to develop your program. Write each in a separate file with the names specified previously, **rectangle.py**, **printing.py**, and **initials.py**

Each of your **three** programs should include a header comment with the following information: your name, course number, assignment title, and date. Also, make sure you include comments throughout your code describing the major steps in solving the problem.

Grading Details

Your programs will be graded upon the following criteria:

1) Your correctness

2) Your programming style and use of white space. Even if you have a plan and your program works perfectly, if your programming style is poor or your use of white space is poor, you could get 10% or 15% deducted from your grade.

3) Compatibility to IDLE.