

CS 115 Exam 1, Spring 2012

Your name: _____

Rules

- You may use one handwritten 8.5 x 11" cheat sheet (front and back). This is the only resource you may consult during this exam.
- Explain/show work if you want to receive partial credit for wrong answers.
- As long as your code is correct, you will get full credit. No points for style.
- When you write code, be sure that you clearly indicate the indentation level of each statement.

Grade (instructor use only)

	Your Score	Max Score
Problem 1		40
Problem 2		30
Problem 3		30
Total		100

Problem 1: 40 points.

What will print to the screen when each of the following snippets of code is executed in IDLE?

Be very clear with spacing, line breaks, etc.

Note: the parts of this problem are *independent*.

(a)

```
z = 47.5
print(z)
```

(b)

```
a = "zz"
print(a, "a")
```

(c)

```
a = 5
b = 2
c = a / b
print(c)
```

(d)

```
var = 3
print(var * 2)
print(var)
print(var + 2)
```

(e)

```
y = 2
if y != 2:
    print(y)
if y >= 2:
    print(5)
```

(f)

```
a = -3
if a < 0:
    print("brownies")
elif a < 12:
    print("cookies")
```

(g)

```
x = 1
for i in range(5):
    x = x + 1
print(x)
```

(h)

```
for i in range(3):  
    print(i+1)
```

(i)

```
for i in range(4):  
    print("cake")
```

(j)

```
for i in range(2, 4):  
    print(i)
```

Problem 2: 30 points.

Write snippets of code to do the following. Your code should only print the requested output. You will lose points for printing additional output.

You can assume that all your snippets are enclosed within a main function and that any necessary libraries have been imported. You only need to write the specific lines of code that accomplish each task.

- (a) Ask the user to enter a price in US dollars. Assume the user enters a valid number. Then print that price in euros. Your exchange rate is 1 euro = 1.3246 dollars.

(b) *Assume:*

- Two variables r and h have already been assigned values for you. Do not overwrite these values.
- Assume that the math library has been imported.

Your task: If r is the radius of a cylinder and h is its height, print the volume of the cylinder using the formula:

$$\text{Volume} = \pi r^2 h$$

(c) Ask the user to enter the prices of five items. Print an error message for each negative price that the user enters.

(d) Ask the user to enter 10 days of the week. Afterward, print `Yippee!` if the user typed `Sunday` at least once.

Problem 3: 30 points.

For this problem, you must write a **complete program**. That includes a docstring, a `def main()`, any necessary library imports, etc.

Read the instructions carefully before you start coding! If you get stuck, try to maximize your partial credit.

Your program should do the following:

1. Ask the user to enter the x and y coordinates of a point in 2D space. You can assume that the user enters valid numbers. We will call these coordinates x_{orig} and y_{orig} .
2. Ask the user to enter the x and y coordinates of 10 more points.

For each point entered by the user, print the slope of the line running from the original point (from Step 1) to this new point. You can calculate the slope as:

$$(y_{new} - y_{orig}) / (x_{new} - x_{orig})$$

You can assume that the user enters valid numbers. You can also assume that the user will not enter values that lead to an infinite slope.

3. Print the average of all of the slopes you calculated in Step 2.

