

CS 115 Exam 2, Fall 2011

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)

```
s = "abcde"
for x in s:
    print(x)
```

(b)

```
s = ["abcde", "fg", "hi"]
for x in s:
    print(x)
```

(c)

```
a = 5
while a > 2:
    print(a+1)
    a = a - 1
```

(d)

```
for i in range(2):
    for j in range(3):
        print(i+j)
```

(e)

```
L = [10, 20, 30, 40]
print(L[1])
```

For the rest of this problem, assume that the following functions have been defined:

```
def f1( ):
    return 8

def f2(x):
    return 5 + x

def f3(L):
    return (len(L))

def f4(x):
    y = x
    x = 12
    return y ** 2
```

What will the following snippets of code print?

(f)
`print(f1())`

(g)
`x = 300`
`y = 0`
`print(f2(y))`

(h)
`a = [5, 4, 3, 2, 1, 0]`
`print(f3(a))`

(i)

```
x = 4  
print(f4(x))  
print(x)
```

(j)

```
print(f2(f2(0)))
```

Problem 2: 30 points.

Write functions to perform the following tasks.

Keep in mind the following:

- Your functions should NOT ask the user for input.
- Your functions should NOT print anything.
- Your functions should NOT call `sys.exit()` to terminate the program.

(a) Write a function called `convert_dollars` that...

- * has one input parameter: a price in cents
- * returns the corresponding price in dollars

(b) Write a function called `find_candy` that...

- * Takes 2 strings as input parameters
- * Returns the string `"delicious"` if at least one of the strings is `"candy"`
- * If neither of the string is `"candy"`, returns the string `"too bad!"`

- (c) Write a function called `compare_lists` that...
- * Takes two lists of numbers as input parameters
 - * Returns False if the two lists are of unequal length
 - * Returns True if ALL elements of the first list are greater than the FIRST element of the second list. Returns False otherwise.

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!

Your program should contain the following:

1. A function called `GetNum` that does the following:
 - Asks the user to enter a number
 - If the user entered a valid number, returns that number
 - If the user did not enter a valid number, prints an error message and exits the program

2. A function called `IsGrade` that does the following:
 - Has one input parameter (a number)
 - Returns `True` if its input parameter is between 0 and 100 (inclusive) and `False` if it is not

3. A main function that does the following:
 - Uses `GetNum` to repeatedly prompt the user to enter a number, stopping when the user enters -1.
 - Uses `IsGrade` to test whether each number is a legitimate grade
 - If there were NO legitimate grades, prints an error message. You should only print this error message ONCE.
 - Otherwise, prints the average of all of the numbers that were legitimate grades. You should only print this average ONCE.

