Homework 1

CSC-432

Due: 1/24/13

Quick Review Question 1 (Answers in PEP 8):

1. What is the suggested maximum line length in Python?
2. Which is the preferred naming for a function that computes the square of a number?

   a) computeSquare

   b) ComputeSquare

   c) compute_square

   d) sq

3. Which is the preferred idiom for checking if types are equal?

   a)

```
if isinstance(obj, int):
    ...
```

   b)

```
if type(obj) == int:
    ...
```

   c)

```
if type(obj) == type(1):
    ...
```

Quick Review Question 2:

Evaluate 100! using scipy.misc.factorial.

Quick Review Question 3:

What is the largest number you can get the factorial for? Bonus points if you can explain why?

Hint: Look at the documentation for np.finfo, then look at the object returned by np.finfo(np.float64), assuming you are on a 64-bit Python. Use np.float32 if not. You can find out for sure by running the following Python code

```
import platform
print platform.architecture()[0]
```

Quick Review Question 4:

Type commands that add the *fractions* one-half and three-fourths, giving the correct floating point answer.

Quick Review Question 5:

Create a list for each of the following:

1. A list called `ages` with values 19, 21, 21, 20.
2. A list called `names` with values "Lucky", "Dusty", and "Ned".

Use the range function to create vector variables for each of the following:

1. A list called `item_nums` with all the whole numbers between (and including) 10000 and 10005.
2. A list called `pipe_fittings` with all the even numbers between (and including) 32 and 48.

Quick Review Question 6: Write code that assigns 1 to a variable `d`. In a loop that executes 10 times, change the value of `d` to be double what it was before the previous iteration. After the loop, print `d` to display its final value. Determine the value of `d` beforehand to check your work.

Quick Review Question 7:

1. Define a function $quick(x) = 2sin(x-1)+2$. You can use `sin` from the built-in `math` module.
2. Evaluate the function at $x = 5$.

Quick Review Question 8:.

1. Define the funtion qrq17 to be $\ln(3x+2)$. You can use `log` from the built-in `math` module.
2. Write a loop that prints the value of `k` and `arq17(k)` for the integers k from 1 to 8.

Quick Review Question 9:

Take the following list [[“id”, “height”, “score”], [123, 67.5, .9]] and assign it to a variable called `data`. Using three print statements and string formatting, print the contents of the list so that the result looks *exactly* like this.

```
"   id    |   height    |   score   "
"========|============|==========="
" 00123   |   67.500    |    0.90   "
```

Hints:

- There are a number of ways to write code to produce this output. Try to be as succint as possible.
- Explore the `join` method of strings. What does “,”.join(range(3)) do?
- What does “-”*5 do?
- Read the string formatting section of the Python documentation. I find it easier to start with the examples, then to look at the documentation so that the docs syntax makes a little more sense. What I showed you in class was old-style formatting. This has been superseded in Python 3 with new-style formatting using the `format` method. This new style formatting will work in Python 2.7.
- Note that " ".format expects a variable number of arguments, *not an iterable*. Read up on unpacking argument lists