Quiz 2

Name: _____

Question 1 (20 points). For each of the descriptions below, write the corresponding Python code. The first part of this question has been filled in for you as an example.

	Description	**Expression**
(a).	Variable `x` does not contain the value zero.	`x != 0`
(b).	Variable `a` contains a value which is less than 2.	_____
(c).	Variable `y` contains a positive number.	_____
(d).	The value in variable `y` is between 3 and 5.	_____
(e).	The string in variable `s` is at least five characters long.	_____
(f).	The string in variable `s` is one of `"y"`, `"Y"`, `"yes"`, or `"Yes"`.	_____

Question 2 (30 points). Each of the following Python programs prints `"Hello"` some number of times. For each program, indicate the number of times it prints `"Hello"` and then **briefly justify your answer**. Hint: try working out how the program runs (perhaps by tracking the value of each variable); this should help you reach the right answer.

(a).

```python
for n in range(50,100):
  print "Hello"
```

(b).

```python
for i in range(4):
  for j in range(3):
    print "Hello"
```

(c).

```python
for i in range(50):
  if i % 13 == 0:
    print "Hello"
  elif i % 37 == 0:
    print "Hello"
```

Question 3 (30 points). Each program below is accompanied by a description of what it is intended to do. The programs are incorrect; they do not do what is described. Describe what is wrong with each program and how to correct it.

(a). This program was intended to print the last letter in a string entered by the user.

```
1 message = raw_input("Please enter a messsage: ")
2 print "The last letter was %s." % (message[len(message)])
```

(b). This program was intended to print the sum of all numbers between `1` and `100`.

```
1 total = 0
2 for i in range(1,101):
3   total = i
4 print total
```

Question 4 (20 points). Consider the following two programs. One is written using `elif` on line 5; the other uses `if` in its place. Otherwise, the programs are identical.

```
1 num = int(raw_input("What is your number? "))
2 print "Your number is",
3 if num % 5 == 0:
4   print "funny."
5 elif num % 3 == 0:
6   print "spooky."
7 else:
8   print "normal."
```

```
1 num = int(raw_input("What is your number? "))
2 print "Your number is",
3 if num % 5 == 0:
4   print "funny."
5 if num % 3 == 0:
6   print "spooky."
7 else:
8   print "normal."
```

Under what circumstances will these two programs give different output? Describe the *general* rule for when the programs will give different output. Then, give an example of a number the user could enter that would generate different output and describe the output for each program.