

List, for Loop, and Numpy Array Solutions

1.

```
list = ['John Smith', 'Michael Anderson', 'Archibald Farnsworth the Fourth']
list.insert(2, 'Some Name')
print list
```

2.

```
list = ['s', 'h', 'j', 'k', 'd', 'q']
list.sort()
list.reverse()
```

3.

```
list = ['s', 'h', 'j', 'k', 'd', 'q']
new_list = list[1::2]
```

4.

```
list = range(2,24,2)
```

5. It would produce the following output [13, 18, 23, 28, 33, 38].

6.

```
list = ['John Smith', 'Michael Anderson', 'Archibald Farnsworth the Fourth']
list[1] = 'Some Name'
```

7.

```
months = ('Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sept', 'Oct', 'Nov', 'Dec')
input = raw_input('Please input a date of form MM/DD/YYYY: ')
date = input.split('/')
M = date[0]
D = date[1]
Y = date[2]
new_format = D + ' ' + months[(int(M) - 1)] + ' ' + Y
print new_format
```

8.

```
for i in range(1, 11):
    print i**2
```

9. For part a)

```
sum = 0
for i in range(1, 101):
    sum += i
print sum
```

For part b)

```
n = int(raw_input("Enter a positive integer: "))
```

```
sum = 0
for i in range(1, n + 1):
    sum += i
print sum
```

10.

```
n = int(raw_input("Enter a positive integer: "))
factorial = 1
for i in range(1, n + 1):
    factorial *= i
print factorial
```

11. The range function only takes integral increments; 0.1 is not an integral increment.

12.

```
n = int(raw_input("Enter a positive integer: "))
for i in range(1, n+1):
    if n%i == 0:
        print i
```

13. For part a)

```
entry = ''
L = []
while entry != 'end':
    entry = raw_input("Type something: ")
    L.append(entry)
```

For part b)

```
for entry in L:
    print entry
```

For part c)

```
for entry in L:
    if entry.isalpha():
        print entry
```

14.

```
for i in range(2, 101):
    divisors = []
    for j in range(1, i+1):
        if i%j == 0:
            divisors.append(j)
    if len(divisors) == 2:
        print i
```

15.

```
n1 = int(raw_input("Enter an integer: "))
n2 = int(raw_input("Enter another integer: "))
divisors1 = []
divisors2 = []
for i in range(1, n1+1):
```

```
        if n1%i == 0:
            divisors1.append(i)
for i in range(1, n2+1):
    if n2%i == 0:
        divisors2.append(i)
gcd = 1
for divisor in divisors1:
    if divisor >= gcd and divisor in divisors2:
        gcd = divisor
for divisor in divisors2:
    if divisor >= gcd and divisor in divisors1:
        gcd = divisor
print "The greatest common divisor is", gcd
```