1. Strings are immutable and lists are mutable.  Strings can only have characters while lists can store anything.  Strings have many methods like upper() and lower() that do not apply to lists, and visa versa (like append() for lists).  String methods return a new string as opposed to changing a string in place.  Etc…

2.

   a. # get user input and determine if pos. or neg.
```
num = int(input("enter a number: "))
if num>=0:
        print ("num is positive")
else:
        print ("num is negative")
```

   b.  # determine if odd or even
```
if num%2==0:
        print "(num is even")
else:
        print ("num is odd")
```

   c.  # print all numbers between 2 inputs
```
num1 = int(input("enter a number: "))
num2 = int(input("enter a number: "))
if num1>num2:
        print ("error, start number bigger than end!")
else:
        for i in range(num1, num2+1):
                print(i)
```

3.  output:
```
        0
        10
        20
        30
        40
```

   better loop:
```
        for i in range(0,50,10):
                print(i)
```

   while loop:
```
        i=0
        while i<50:
                print(i)
                i += 10
```

4.  modules: math, graphics, random, decimal, etc…

5.
```
price = float(raw_input("enter the price of the items: "))
cash = float(raw_input("enter the money paid: "))
```

```
change = cash — price
if change < 0:
    print "Hey!  I need more $$$!"
else:
    dollars = int(change)
    cents = (change — dollars)*100
    quarters = cents/25
    cents = cents%25
    dimes = cents/10
    cents = cents%10
    nickels = cents/5
    pennies = cents%5
    print "change required is", dollars, "dollars,", quarters,
"quarters,", dimes, "dimes,", nickels, "nickels, and", pennies,
"pennies"
```

6.
   a. missing the part of the while loop that updates x, add the line "x=x+1" at the end of the while loop and it will be fixed.
   b. i becomes the next value before it is added to the sum, so the sum is actually 2+3+4+5+6.