Object Oriented Programming

Homework Assignment

Problem 1

Fill in the Line class methods to accept coordinates as a pair of tuples and return the slope and distance of the line.

In [1]:

```
class Line(object):

    def __init__(self,coor1,coor2):
        self.coor1 = coor1
        self.coor2 = coor2

    def distance(self):
        x1,y1 = self.coor1
        x2,y2 = self.coor2
        return ((x2-x1)**2 + (y2-y1)**2)**0.5

    def slope(self):
        x1,y1 = self.coor1
        x2,y2 = self.coor2
        return (y2-y1)/(x2-x1)
```

In [2]:

```
coordinate1 = (3,2)
coordinate2 = (8,10)

li = Line(coordinate1,coordinate2)
```

In [3]:

```
li.distance()
```

Out[3]:

```
9.433981132056603
```

In [4]:

```
li.slope()
```

Out[4]:

```
1.6
```

Problem 2

Fill in the class

In [5]:

```
class Cylinder:

    def __init__(self,height=1,radius=1):
        self.height = height
        self.radius = radius

    def volume(self):
        return self.height*3.14*(self.radius)**2

    def surface_area(self):
        top = 3.14 * (self.radius)**2
        return (2*top) + (2*3.14*self.radius*self.height)
```

In [6]:

```
c = Cylinder(2,3)
```

In [7]:

```
c.volume()
```

Out[7]:

```
56.52
```

In [8]:

```
c.surface_area()
```

Out[8]:

```
94.2
```