Object Oriented Programming

Homework Assignment

Problem 1

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

```
In [18]: 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 float((y2-y1))/(x2-x1)
```

```
In [19]: coordinate1 = (3,2)
         coordinate2 = (8,10)

         li = Line(coordinate1,coordinate2)
```

```
In [20]: li.distance()
```

Out[20]: 9.433981132056603

```
In [21]: li.slope()
```

Out[21]: 1.6

Problem 2

Fill in the class

In [31]:
```python
class Cylinder(object):

    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 [32]:
```python
c = Cylinder(2,3)
```

In [34]:
```python
c.volume()
```

Out[34]: 56.52

In [35]:
```python
c.surface_area()
```

Out[35]: 94.2