# Exercise 1
# Putting a hashtag in front of your code will comment it out so that the computer ignores it and doesn't run it as code. Include comments so that you and others can understand what your code is doing!

# variables named with a string of characters (no spaces, can't start with a number)
# assignment has the target variable name on the left
x=3
y=2
x+y
print(x+y)

x="he"
y="llo"
print(x+y)

# computing a distance: apply the Pythagorean Theorem to values on orthogonal axes
# needs to know how to take a square root (library)
from math import sqrt
x1=0
y1=0
x2=3
y2=4
dist = sqrt((x2-x1)**2 + (y2-y1)**2)
print(dist)

def pointDistance(x1,y1,x2,y2):
a = x2-x1
b = y2-y1
dist = sqrt(a**2+b**2)
return dist

d = pointDistance(0,0,3,4)
print("The distance is: "+str(d))

# use the distance function in the Shapely library
from shapely.geometry import Point
d=Point(0,0).distance(Point(3,4))
print("From Shapely, the distance is: "+str(d))