In [ ]:
```
# Module 05 Lab 01

HD Sheets
11/13/2024

Material from "Think Python" by Allen Downey

https://allendowney.github.io/ThinkPython/index.html

Chapters 1 and 2
```

Exercise 1.9.2

See the book, run the examples from the book below and then give your explanation

Test your explanation, using several example values

https://allendowney.github.io/ThinkPython/chap01.html

In [ ]:
```
# code for 1.9.2
You might wonder what round does if a number ends in 0.5. The answer is that

round(42.5)

42

round(43.5)

44

#If you are curious, ask a virtual assistant, “If a number ends in 0.5, does
```

In [ ]:
```
# Exercise 1.9.3
#You can use a minus sign to make a negative number like -2. What happens if
#Ans: Syntax error operator does not exist in Python.
#What happens if you have two values with no operator between them, like 4 2
#Ans: Syntax error Python does not know how to interpret.
#If you call a function like round(42.5), what happens if you leave out one
#Ans: Syntax error not recognized as a function call.
```

Exercise 1.9.5

Show one code cell for each of the 5 questions in this exercise

In [1]:
```
# 1.9.5_1
#How many seconds are there in 42 minutes 42 seconds?
# # of seconds = (# secs in a minute * # of mins) + add'l secs
(60*42)+42
```

Out[1]: 2562

In [3]:
```
# 1.9.5_2
#How many miles are there in 10 kilometers? Hint: there are 1.61 kilometers
## of miles = # of km/(1.61km/miles)
10/1.61
```

Out[3]: 6.211180124223602

In [5]:
```
# 1.9.5_3
#If you run a 10 kilometer race in 42 minutes 42 seconds, what is your avera
#pace in sec per mile = ((time in min * # secs in a min) + add'l secs)/(10km
(42*60+42)/(10/1.61)
```

Out[5]: 412.482

In [7]:
```
# 1.9.5_4
#What is your average pace in minutes and seconds per mile?
#avg pace in min plus seconds = pace in min per mile + pace of the add'l sec
((42*60)/(10/1.61))/60 + 42/(10/1.61)
```

Out[7]: 13.524000000000001

In [15]:
```
# 1.9.5_5
#What is your average speed in miles per hour?
# avg speed = (# miles in 10km)/((time in min * # secs in a min) + add'l sec
(10/1.61)/(((42*60)+42)/(60)/(60))
```

Out[15]: 8.727653570337614

Exercise 2.11.2

https://allendowney.github.io/ThinkPython/chap02.html

In [ ]:
```
#We've seen that n = 17 is legal. What about 17 = n? Ans: illegal
#How about x = y = 1? Ans: legal
#In some languages every statement ends with a semi-colon (;). What happens
#What if you put a period at the end of a statement? Ans: Same answer as abo
#What happens if you spell the name of a module wrong and try to import maat
```

2.11.3. Exercise

Complete these 3 parts, with one part per cell

https://allendowney.github.io/ThinkPython/chap02.html

In [ ]:
```
#Practice using the Python interpreter as a calculator:

#Part 1. The volume of a sphere with radius is

#. What is the volume of a sphere with radius 5? Start with a variable named
#Ans:
#Part 2. A rule of trigonometry says that for any value of
,
#. Let's see if it's true for a specific value of
 #like 42.

#Create a variable named x with this value. Then use math.cos and math.sin t
#, and the sum of their squared.

#The result should be close to 1. It might not be exactly 1 because floating

#Part 3. In addition to pi, the other variable defined in the math module is
#. If you are not familiar with this value, ask a virtual assistant "What is

#Use math.e and the exponentiation operator (**).
#Use math.pow to raise math.e to the power 2.
#Use math.exp, which takes as an argument a value,
#, and computes
#.
#You might notice that the last result is slightly different from the other
```