Exercise 2.1

If you type an integer with a leading zero, you might get a confusing error:

>>> zipcode = 02492

SyntaxError: invalid token

Other numbers seem to work, but the results are bizarre:

>>> zipcode = 02132

>>> zipcode

1114

Can you ﬁgure out what is going on? Hint: display the values 01,010, 0100, 01000

**Python is assuming that we want to convert octal number to a decimal number and in the second case, 9 won’t be a valid octal number, though we still can do the conversion manually:**

**>>> print 02132**

**1114**

**>>> (2\*512)+(1\*64)+(3\*8)+(2\*1)**

**1114**

**>>>**

Exercise 2.2.

Type the following statements in the Python interpreter to see what they do:

**5 – shows 5**

**x=5 – sets x to 5**

**x+1 – adds 5 to 1 resulting in 6**

**Now put the same statements into a script and run it. What is the output? Modify the script by**

**transforming each expression into a print statement and then run it again.**

**Almost all of those above would work with print statement save for print x=5, apparently because we’re trying to do two things at once – set x to 5 and print out the resulting x.**

**Proper way of doing it is:**

**x=5**

**print x**

Exercise 2.3.

Assume that we execute the following assignment statements:

Width = 17

Height = 12.0

Delimiter = ‘.’

For each of the following expressions, write the value of the expression and the type (of the value of

the expression).

1. width/2

8 / integer

1. width/2.0

8.5 / float

1. height/3

4.0 / float

1. 1 + 2 \* 5

11 / integer

1. Delimiter \* 5

….. / string

Use the Python interpreter to check your answers.

We find out the type by putting the actual word type in front of expression, like this:

type(3.2)

type(3 + 6)

Exercise 2.4.

Practice using the Python interpreter as a calculator:

1. The volume of a sphere with radius r is r = ⁴⁄₃πr³.

What is the volume of a sphere with radius 5?

Hint: 392.7 is wrong!

**We’ll use the example of equation: V = ⁴⁄₃πr³. The "V" stands for volume and "r" stands for radius of the sphere.**

**Find the radius – in our case 5.**

**Cube the radius – 5 \* 5 \* 5 = 125**

**125 x pi (3.14159265) = 392.699**

**392.69908125 \* 4 / 3 = 523.598775**

**Final answer: 523.598775**

2. Suppose the cover price of a book is $24.95, but bookstores get a 40% discount. Shipping costs

$3 for the ﬁrst copy and 75 cents for each additional copy. What is the total wholesale cost for

60 copies?

**Cover price of a book – 24.95**

**Discount – 24.95 \* 40 / 100 = 9.98**

**Price of a book without shipping – 24.95 – 9.98 = 14.97**

**First book with shipping – 14.97 + 3 = 17.97**

**Price of each book after the first one w/shipping – 14.97 + 0.75 = 15.72**

**Price of 59 books, not counting the first one – 15.72 \* 59 = 927.48**

**Price of 60 books, including the first one = 927.48 + 17.97**

**Final Answer: 945.45**

3. If I leave my house at 6:52 am and run 1 mile at an easy pace (8:15 per mile), then 3 miles at

tempo (7:12 per mile) and 1 mile at easy pace again, what time do I get home for breakfast?

**1 mile at easy pace – 8.15**

**2 miles at easy pace – 16 min 30 sec**

**3 miles at tempo – 21 min 36 sec**

**5 miles in total – 38 min 6 sec**

**6:52 + 38 min 6 sec – 7 hours 30 mins 6 seconds**