Assignment 1

1) Write a Python program to find average of three numbers entered by the user.

Code

```
num1 = int(input("Enter first number:"))
num2 = int(input("Enter second number:"))
num3 = int(input("Enter third number:"))

avg = (num1 + num2 + num3)/3
print(avg)
```

Output

```
Enter first number:5
Enter second number:10
Enter third number:15
10.0
>>>
```

2) Write a python program to compute a person's income tax. Assume following

tax laws:

• All taxpayers are charged a flat tax rate of 20%.

• All taxpayers are allowed a $10,000 standard deduction.

• For each dependent, a taxpayer is allowed an additional $3,000 deduction.

• Gross income must be entered to the nearest penny.

Gross Income and the number of dependents must be asked from the user.

Hint:

Taxable income = GrossIncome - Standard deduction - (Dependent deduction

* No. of dependents)

Tax = Taxable Income * Tax Rate

Code

```
gross_income = float(input("Enter gross income to the nearest penny:"))
std_deduction = 10000 #standard deduction
dependent = 3000 #dependent deduction
num_dependent = int(input("Enter number of dependents:"))
taxable_income = gross_income - std_deduction - (dependent * num_dependent)
tax_rate = 0.2
tax = taxable_income * tax_rate
print("Income tax:",tax)
```

Output

```
Enter gross income to the nearest penny:566335
Enter number of dependents:3
Income tax: 109467.0
>>>
```

3. Write a program that asks the user for a number of seconds and prints out how many minutes and seconds that is. For instance, 200 seconds is 3 minutes and 20 seconds. [Hint: Use the //operator to get minutes and the % operator to get seconds.]

Code:

```
num_sec = int(input("Enter number of seconds: "))
minute = num_sec//60
sec = num_sec%60
print(f"That's {minute} minutes and {sec} seconds")
```

Output

```
Enter number of seconds: 2532
That's 42 minutes and 12 seconds
>>>
```

4) Write a python program to add three numbers 25+'25'+25.0 and produce result 75 as string.

Code:

```
a = '25'
b = 25
c = 25.0
d = str(int(a) + b + int(c))
print(f"{d}, this is",type(d))
```

Output

```
75, this is <class 'str'>
>>>
```

5) Write a program that prints out the sine and cosine of the angles ranging from 0 to 345◦ in 15◦ increments. Each result should be rounded to 4 decimal places.

Code:

```
import math

for i in range(0,360,15):
    sin = math.sin(i*math.pi/180)
    cos = math.cos(i*math.pi/180)
    print(i,'---',round(sin,4),round(cos,4))
```

Output:

```
0 --- 0.0 1.0
15 --- 0.2588 0.9659
30 --- 0.5 0.866
45 --- 0.7071 0.7071
60 --- 0.866 0.5
75 --- 0.9659 0.2588
90 --- 1.0 0.0
105 --- 0.9659 -0.2588
120 --- 0.866 -0.5
135 --- 0.7071 -0.7071
150 --- 0.5 -0.866
165 --- 0.2588 -0.9659
180 --- 0.0 -1.0
195 --- -0.2588 -0.9659
210 --- -0.5 -0.866
225 --- -0.7071 -0.7071
240 --- -0.866 -0.5
255 --- -0.9659 -0.2588
270 --- -1.0 -0.0
285 --- -0.9659 0.2588
300 --- -0.866 0.5
315 --- -0.7071 0.7071
330 --- -0.5 0.866
345 --- -0.2588 0.9659
>>>
```