



problems on functions

1. Given the temperature of a day in Degrees Celsius, convert this given temperature from Celsius to Fahrenheit. Complete the function to do so. Round the output up to 2 decimal places

Note:

1. To round up the values -
 - Python : Use **round(ans,2)** to round up ans to two decimals
2. The formula to convert Celsius to Fahrenheit is: **$F = (9/5 * C) + 32$**

```
def celsius_farhen(Celsius):  
    ans = (Celsius* 9/5)+32  
    return round(ans,2)
```

2. Write a program to calculate the **total amount** if the **principal amount**, **simple interest** rate per annum, and **time** in the number of days are given. The simple interest rate per annum is provided as a **percentage**. Assuming that there are 365 days in a year, print the total amount rounded up to 2 decimal places.

Note 1: Use **round(ans,2)** to round up ans up to two decimals

```
def simple_int(time,pa,ir):  
    ''' time, pa, ir represents the time in number of days,  
        principal amount and rate of interest  
        Return the simple interest'''  
    interest = (pa * ir * time)/(365*100)
```

```
ans = pa + interest
```

```
return round(ans,2)
```

3. Write a program that takes the cost price of a vehicle as an argument and returns the road tax, that the vehicle owner has to pay according to the following criteria:

Cost price (in Rs)	Tax
> 1,00,000	20 %
> 75,000 and <= 1,00,000	15%
> 50,000 and <= 75,000	10%
<= 50,000	5%

Note1: Return the tax up to one decimal place. You can use `round(tax,1)`

```
def road_tax(price):
    if price > 100000:
        tax = 0.2 * price
    elif (price > 75000 and price <= 100000):
        tax = 0.15 * price
    elif (price > 50000 and price <= 75000):
        tax = 0.1 * price
    else:
        tax = 0.05 * price
    return round(tax,1)
```

4. You are given a positive integer **A** denoting the **radius** of a circle. You have to calculate the **area of the circle**. **Note:** The formula for the area of a circle is $\text{Area} = \pi r^2$, where r is the circle's radius. You can use the value

of **PI** as **3.1416**. Round up the final answer up to **2 decimal places**. You can use `round(area, 2)` for rounding area to 2 decimal places



```
class Solution:
    # @param A : integer
    # @return an integer
    import math
    def solve(self, A):
        return math.ceil(math.pi*(A**2))
```

5. Given an integer n , write a program to return the sum of squares of first n natural numbers in integer format.

Note1:

The formula for the sum of squares of first n natural numbers is: **$n(n+1)(2n+1)/6$**

```
def sum_squares(n):
    ans = (n*(n+1)*(2*n+1))//6
    ''' input:Given Integer n
        output: Return ans as sum of squares in integer form

    return ans
```

6. You are given a lowercase latin alphabetic character **C**. You have to tell whether it is a vowel or not.

The characters '**a**', '**e**', '**i**', '**o**', and '**u**' are called vowels.

Note: You just have to write the code inside the function and return the result. The **input** and **output** is handled in the backend.

Problem Constraints:

C \in ['a' - 'z']

Input Format:

The input consists of a single character **C**.

Output Format:

Return **1** if the given character is a vowel, else return **0**.

```
def isvowel(C):  
    ans = None  
    # YOUR CODE GOES HERE  
    vowel = "aeiou"  
    if C in vowel:  
        return 1  
    else:  
        return 0  
  
    return ans
```

7. Given the height (**A**) and weight (**B**) of a person as input in centimetres and kilograms.

Find the BMI of that person and the classification of the user based on their BMI.

1. Print **Underweight** if BMI < 18.5
2. Print **Normal** if BMI lies in the range [18.5, 24.9]
3. Print **Overweight** if BMI lies in the range (24.9, 29.9]
4. Print **Obese** if BMI is greater than 29.9

If **x** is the weight in kilograms and **y** is the height in metres.

Then, BMI is calculated as **$x/(y*y)$** .

Note: Use **round(BMI,1)** to get only one digit after decimal

Input Format -

The first line contains the height of the person in centimetres.

The second line of the input contains the weight of the person in kilograms.

Output Format -

The first line of the output contains the classification of a person based on the BMI value.

The second line of the output contains the BMI value of the person having only one digit after decimal.

```
def main(height_cm,weight):
    height = height_cm/100
    BMI = (weight/(height * height))
    # YOUR CODE GOES HERE
    # Please take input and print output to standard input/output
    # E.g. 'input()/raw_input()' for input & 'print' for output
    return BMI
def classify(BMI):
    if BMI < 18.5:
        return "Underweight"
    elif 18.5 <= BMI <= 24.9:
        return "Normal"
    elif 24.9 < BMI <= 29.9:
        return "Overweight"
    else:
        return ("Obese")

height_in_cm = int(input())
weight_in_kg = int(input())

BMI = main(height_in_cm,weight_in_kg)

classification = classify(BMI)
rounded_bmi = round(BMI,1)
print(classification)
print(rounded_bmi)
```