Name:	**QUID:**

Quiz instructions: The quiz time is 20 minutes. Use proper indentation/alignment in your code, the line of the answer sheets are formatted for this purpose.

Q.2 ***[100 POINTS] [Students' average needed time to solve and review is 15 MINUTES]***

Write a program that has the following:

- A definition of the function **f** that receives a float value **x** and a positive odd integer **n** and returns the result of calculating the series $f(x,n) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots \frac{x^n}{n!}$

  Hint: **i!** is the factorial of **i** which is a built-in function in the math module it is **math.factorial(i)**
- A definition of the function **inputValidN** that returns a valid value of **n**, input by the user. The value of **n** is valid if an only if it is a positive odd integer.
- A definition of the **main** function that does the following:
  - ❖ calls the function **inputValidN** and saves its return value in the local variable **n**.
  - ❖ uses a loop to print the result of calling the function **f** sending different value of **x** in each iteration of the loop and always sending the same value of **n**. The values of **x** to send to the function are 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.
- call the **main** function

Hint: Here is a sample run to have a hint on the required format of the output of your program.

```
Enter an odd integer value n>0: 8
Invalid value
Enter an odd integer value n>0: 99
f(0)=0.0000000
f(1)=0.8414710
f(2)=0.9092974
f(3)=0.1411200
f(4)=-0.7568025
f(5)=-0.9589243
f(6)=-0.2794155
f(7)=0.6569866
f(8)=0.9893582
f(9)=0.4121185
```

Name:	QUID:

```python
def main():
    n=inputValidN()
    for x in range(10):
        y=f(x,n)
        print(f'f({x})={y:.7f}')

def inputValidN():
    n=int(input('Enter positive odd integer value: '))
    while n<=0 or n%2==0:
        print('Invalid value')
        n=int(input('Enter positive odd integer value: '))
    return n

import math
def f(x,n):
    sum=x
    sign=-1
    for i in range(3,n,2):
        sum+=sign*pow(x,i)/math.factorial(i)
        sign*=-1
    return sum

main()
```