Ejercicio #2

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Llevar a codigo funcional las siguientes funciones

$$y = log(x)$$

condición: $x > 0$

```
from math import log
from math import log10

x = float(input("Ingrese x: "))
if x<=0:
  print("fuera del dominio ")
else:
  y= log10(x)
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 6
y es: 0.7782
```

$$y = \log \sqrt{x}$$

Condición:

1. $x > 0$

```
from math import sqrt
x = float(input("Ingrese x: "))
if x<=0:
  print("fuera del dominio ")
else:
  y= log10(sqrt(x))
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 6
y es: 0.3891
```

$$y = \log \sqrt{x^2 - 1}$$

Condicion:

1. $x \neq 1$
2. $x \neq -1$
3. $x \neq 0$

```
from math import sqrt
x = float(input("Ingrese x: "))
if (x==0) or (x==-1) or (x==1):
  print("fuera del dominio ")
else:
  y= log10(sqrt((x**2)-1))
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 5
y es: 0.6901
```

$$y = \frac{\log(\sqrt{x-1})}{x^2+1}$$

Condicion:

1. $x > 1$

```
x = float(input("Ingrese x: "))
if x<=1:
  print("fuera del dominio ")
else:
  y= log10(sqrt(x-1)) / ((x**2)+1)
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 5
y es: 0.0116
```

$$y = \frac{x-1}{\log(x)}$$

Condicion:

1. $x > 1$

```
x = float(input("Ingrese x: "))
if x<=1:
```

```
  print("fuera del dominio ")
else:
  y= (x-1)/log10(x)
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 2
y es: 3.3219
```

$$y = \frac{1}{x} + \sqrt{x-1}$$

Condicion:

1. $x > 1$

```
x = float(input("Ingrese x: "))
if x<1:
  print("fuera del dominio ")
else:
  y= (1/x)+sqrt(x-1)
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 3
y es: 1.7475
```

$$y = \frac{1}{x} + \sqrt{x-1} - \frac{1}{\log(\frac{1}{x+1})}$$

Condicion:

1. $x > 0$

```
x = float(input("Ingrese x: "))
if x<1:
  print("fuera del dominio ")
else:
  y= (1/x)+sqrt(x-1)-1/log10(1/(x+1))
  print("y es: {:.4f}".format(y))
```

```
Ingrese x: 6
y es: 3.5860
```

$$y = \frac{2}{x^2+1}$$

```
x = float(input("Ingrese x: "))
```

```
y= 2/((x**2)+1)
print("y es: {:.4f}".format(y))
```

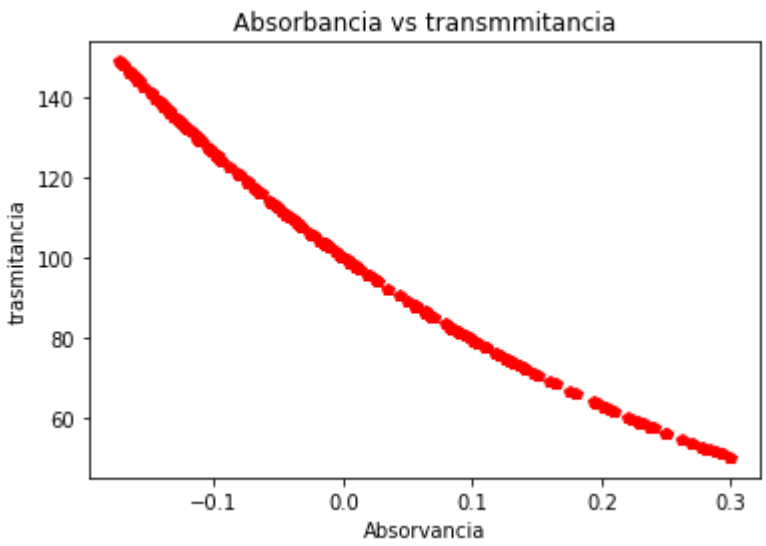
```
     Ingrese x: 8
     y es: 0.0308
```

Problema1.1

```
import math
import numpy
import random
import matplotlib.pyplot as plt

def variance(n):
  var = numpy.random.normal(3,0.3,2)
  list_var = [var[0], var[1]]
  list_g = numpy.random.normal(3,0.3,n)
  for i in range(n):
    list_var.append(list_g[i])
    print( numpy.var(list_var))
  import matplotlib.pyplot as plt
  plt.plot(list_var, range(n+2), 'pr')
  plt.xlabel('Varianza')
  plt.ylabel('N')
  plt.show()
variance(50)
```

```
import numpy

def absorbance(T, *args, **kwargs):
    if str(type(T))[8:12] != 'list':
        return f'ingresar lista de transmitancias'
    else:
        import matplotlib.pyplot as plt
        import math
        transmittance = []
        absorbance = []
        for i in range(len(T)):
            transmittance.append(T[i])
```

```
            A = 2 - math.log10(T[i])
            absorbance.append(A)
        plt.plot(absorbance, transmittance, 'pr')
        plt.title('Absorbancia vs transmmitancia')
        plt.xlabel('Absorvancia')
        plt.ylabel('trasmitancia')
        plt.show()

T = numpy.random.uniform(50,150,180)
absorbance(T =list(T))
```



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