First we import some packages we need

In [3]:
```
import matplotlib.pyplot as plt
import numpy as np
```

Now we define some functions

In [5]:
```
def logistic(x):
    return 1 / (1 + np.exp(-x))

# Define the logit function
def logit(x):
    return np.log(x / (1 - x))
```

now this is some value to check my definition of functions

In [7]:
```
# we will evaluate a couple of values
print(logistic(2))

print(logit(0.8))

# We will also do another test involving a random value
from numpy import random

n = random.rand()
a = logit(n)
b = logistic(a)
print(n,b)
```

```
0.8807970779778823
1.3862943611198908
0.4887613207119966 0.4887613207119966
```

next is plotting. I will create a range of x values for the logistic function

In [9]:
```
x_values_logistic = np.linspace(-10, 10, 400)
```

I will create a range of y values for the logit function (0.01 to 0.99 to avoid division by zero)

In [11]:
```
x_values_logit = np.linspace(0.01, 0.99, 400)
```

Calculate the corresponding y values for both functions

In [13]:
```
logistic_values = logistic(x_values_logistic)
logit_values = logit(x_values_logit)
```

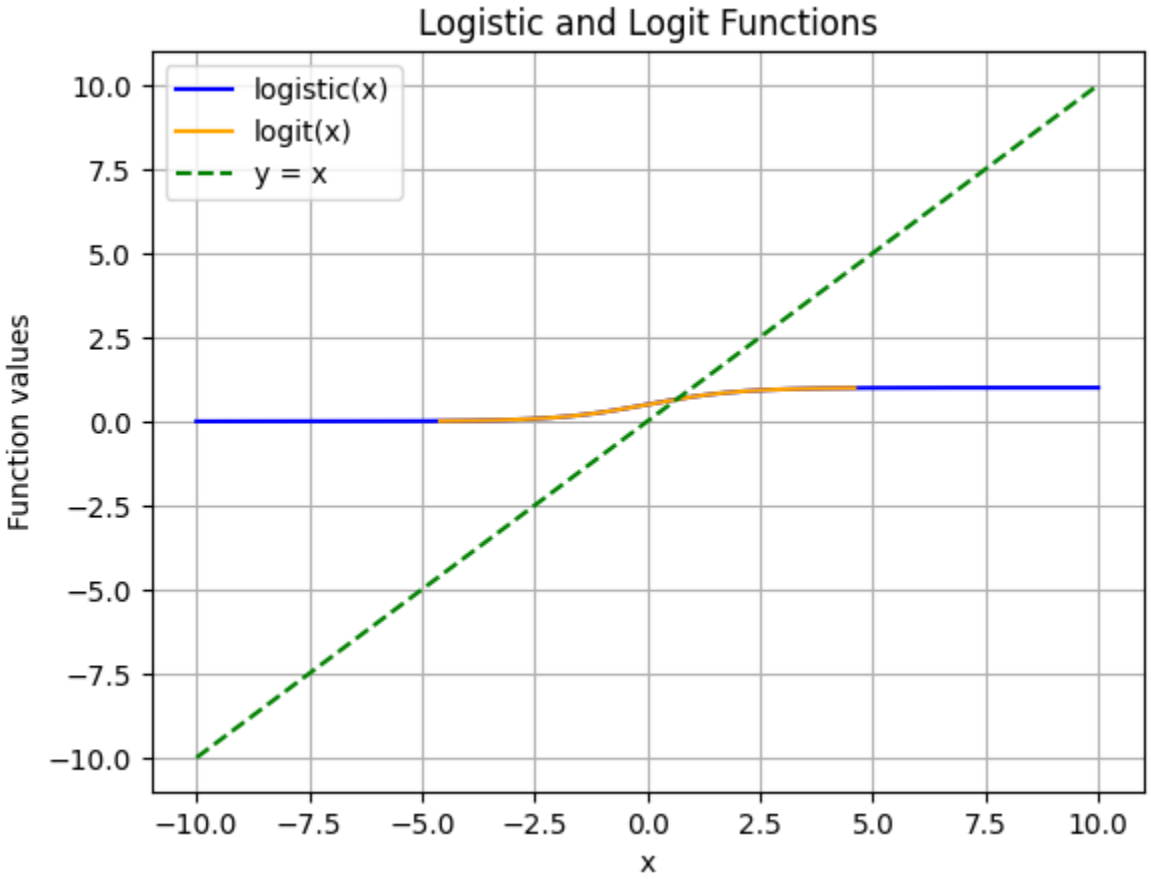
I plot logistic function and logit function

In [29]:
```
plt.plot(x_values_logistic, logistic_values, label='logistic(x)', color='blue')

# Plot the logit function
```

```
plt.plot(logit_values, x_values_logit, label='logit(x)', color='orange')
# Plot the diagonal y = x
plt.plot(x_values_logistic, x_values_logistic, label='y = x', linestyle='--', color
# Add titles and labels
plt.title('Logistic and Logit Functions')
plt.xlabel('x')
plt.ylabel('Function values')
plt.legend()

# Show the plot
plt.grid(True)
plt.show()
```



Plot the diagonal y = x