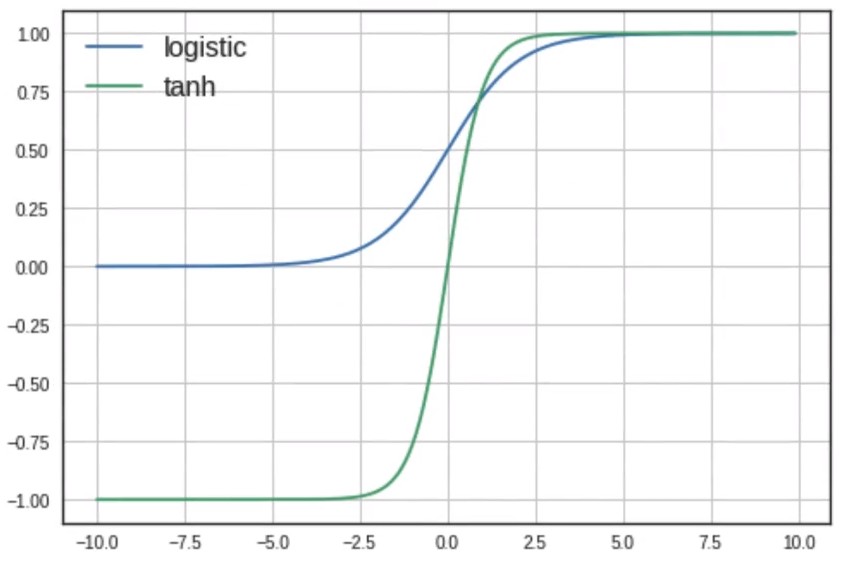
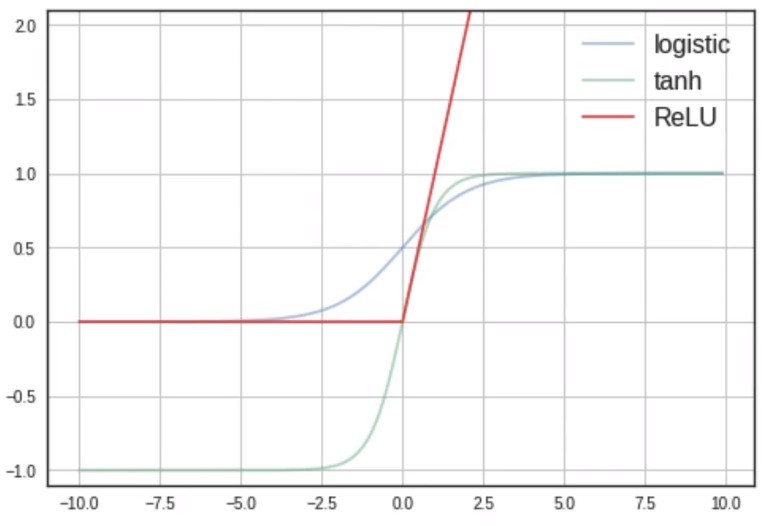
## **Introducing Tanh and ReLU activation functions**

What are the other alternatives to the Logistic function?

1. **tanh**
   1. The following figure illustrates the tanh function
   2. The tanh function ranges from -1 to +1, whereas the logistic function ranges from 0 to 1
   3. It is a zere centered function.
   4. The function saturates at f(x) = -1 or 1, thus causing the gradients to vanish.
   5. tanh is computationally expensive because of ex
   6. However, it is still preferred over the logistic function
2. **ReLU**
   1. The following figure illustrates the ReLU function
   2. ReLU outputs the input value itself if it is positive, else it outputs zero, i.e. f(1) = 1, f(-1) = 0
   3. It does not saturate in the positive region
   4. It is not zero centered
   5. Easy to compute (no expensive ex)