Instructions: Make sure your questions and answers are on different pages. Do not include your name or any other identifying information. I will know that information from Canvas.

Question 1: Explain the difference in derivation between the logarithmic loss function and the sigmoid cross entropy loss function.

Question 2: What is the condition necessary for the quantile loss function to degenerate into the absolute loss function?

Question 3: What limitation of the IoU loss function does the GIoU loss function solve, and how does it solve the problem?

Answer Question 1: The logarithmic loss function uses a probability p that is derived from conditional probability distribution, while the sigmoid cross entropy loss function uses a probability p that is derived from the sigmoid function.

Answer Question 2: The selected quantile γ is at the 50th percentile.

Answer Question 3: The IoU loss function does not have a way of tracking the loss of two boxes that don't intersect. The GIoU loss function overcomes this issue by including an additional component to its formula aside from the IoU loss function, which is a term based on the area of the smallest box that encloses both evaluated boxes.