Math 73/103 Homework week 2

Wednesday 09/22/2021

1. Show that the spaces $C([0,1])$ and $C([a,b])$ with the uniform metric are isometric.

2. Suppose (X, ρ) is a metric space. Then we've shown in earlier homework that $\tilde{\rho}(x,y) = \frac{\rho(x,y)}{1+\rho(x,y)}$ defines a metric on X. Show that (X, ρ) is complete if and only if $(X, \tilde{\rho})$ is.