
Question 21 (3 marks)

A 0.001 mol L^{-1} solution of hydrochloric acid and a 0.056 mol L^{-1} solution of ethanoic acid both have a pH of 3.0.

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Why do both solutions have the same pH?

HCl and ethanoic acid are both acids which means they have a high concentration of hydronium ions. Their molar concentrations - 0.001 mol L^{-1} and 0.056 mol L^{-1} are very close to each other, so therefore you would expect the pH to be around the same if not exactly the same. Also because they are both acids, that means that both will be in the low half of the pH scale.