NAME:

Quiz 3
CHEM 311 Fall 2004

50.00 mL of an aqueous solution of benzoic acid is titrated with standardized NaOH (0.1023 M) solution. The endpoint of the titration was determined to be 35.63 mL using an appropriate indicator.

A) Calculate the concentration of the initial benzoic acid solution.
B) Calculate the pH at the point in the titration after the addition of the first 25.00 mL of titrant.

Ka(benzoic acid) = $6.28*10^{-5}$

A)

[Benzoic acid] = (0.1023 M)(35.63 mL)/(50.00 mL) = 0.07299 M

B)

This is before the equivalence point. Thus, it is appropriate to use Henderson-Hass!

pKa = -log(Ka) = 4.202

pH = pKa + log (V/(Veq-V)) = 4.202 + log (25.00/(35.63-25.00)) = 4.573