

- A 20.0 mL solution of nitrous acid (HNO_2 , $\text{p}K_a = 3.15$) was titrated to its equivalence point with 24.8 mL of 0.020 M NaOH. What is the concentration of the HNO_2 solution?

Answer:

What was the pH at the start of the titration?

pH =

What was the pH after (a) 12.4 mL and (b) 24.8 mL of the NaOH had been added?

(a) 12.4 mL: pH =

(b) 24.8 mL: pH =

Qualitatively, how would each of these three pH values be affected if 5 mL of water were added to the 20.00 mL of nitrous acid before beginning the titration?