

$\text{HNO}_2$  is a weak acid with a  $K_a = 1.9 \times 10^{-4}$ . A 20.00 mL aliquot of a 2.000 M solution of  $\text{HNO}_2$  was titrated with 2.000 M NaOH. The indicator used had a  $\text{p}K_{\text{ind}} = 4.50$ .

- a) At what volume of added NaOH will the end point of the titration be reached? [**17.15 mL**]
- b) Is this a good indicator to use for this titration? [**No – changes colour 2.85 mL (14.3 %) too early.**]