

Chemistry 106 Fundamental Chemistry
Practice Problems for Titrations

Acid	pK _a	Base	pK _b
phosphoric	2.12	triethylamine	2.99
pyruvic	2.49	ethylamine	3.19
lactic	3.86	dimethylamine	3.27
benzoic	4.19	methylamine	3.44
acetic	4.75	trimethylamine	4.19
carbonic	6.37	ammonia	4.75
dihydrogen phosphate	7.21	TRIS	5.92
hydrogen carbonate	10.3	pyridine	8.75
hydrogen phosphate	12.7	aniline	9.37

Calculate the following for each of the titrations below. (initial volumes of analyte given)

a) Moles of analyte

b) Volume of titrant to reach end point

1) 25.00 mL 0.200 M HCl with 0.150 M NaOH

2) 25.00 mL 0.105 M KOH with 0.365 M HCl

3) 10.00 mL of a weak acid (pK_a = 4.65) 0.0900 M with 0.110 M NaOH

4) 50.00 mL of a weak base (pK_b = 5.18) 0.0720 M with 0.150 M HCl

Answers

1) a) 5.00×10^{-3} mol b) 33.33 mL

2) a) 2.62×10^{-3} mol b) 7.19 mL

3) a) 9.00×10^{-4} mol b) 8.18 mL

4) a) 3.60×10^{-3} mol b) 24.00 mL