ANSWERS TO "TRY YOURSELF" PROBLEMS FROM STUDY SECTION 8.4

Try Yourself 8.4 a

What is the pK_a value for the conjugate acid of ammonia?

The conjugate acid of ammonia is NH_4^+

From a table giving K_a and K_b values, you will read the K_a for the ammonium ion in this example and determine the pK_a value.

K_a for $NH_4^+ = 5.6 \times 10^{-10}$

$pK_a = -\log(5.6 \times 10^{-10}) = 9.25$

a) 4.74

b) 9.25

c) 5.60

d) 7.00

Try Yourself 8.4 b

Which of the following has a pK_a value of 4.20?

a) Benzoic acid, $C_6H_5CO_2H$

b) Acetic acid, CH_3CO_2H

c) Metanoic acid, HCO_2H

d) Hydrofluoric acid, HF

K_a from $pK_a = 10^{-pKa}$

$K_a = 10^{-4.20} = 6.3 \times 10^{-5}$

You then go to a table with K_a and K_b values (or the internet) and determine which acid has the corresponding K_a value in this example.