

How to Determine pI for a Peptide

1. Make a list of pKas for all ionizable protons including the N- and C- terminus either in ascending or descending order. *Remember pKas will be provided for you on a test.*
2. Determine the net charge at pH = 7.
3. If the net charge is negative, determine at a more acidic pH. If the net charge is positive, determine at a more basic pH.
4. When you find a pH that results in a net charge of 0, average the 2 pKas that are closest to that pH (one above, one below).

Example Problem:

Determine the pI for the following peptide:

PYKQH

	pKa	pH 7	pH 10
C-term	3.5	-	-
His	6.0	0	0
N-term	9.0	+	0
Tyr	10.5	0	0
Lys	10.5	+	+
Net Charge		+1	0

$$\text{pI} = (10.5+9.0)/2 = 9.75$$