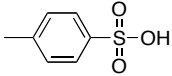


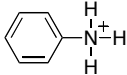

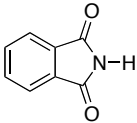

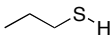

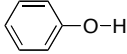
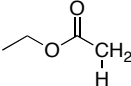
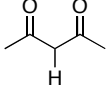
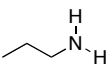

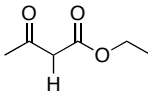


Acid Ionization Constants for Major Organic Acid Classes

Name and Example	Typical pK _a	Name and Example	Typical pK _a
Sulfonic Acid 	0-1	Water $\text{H}-\text{O}-\text{H}$	15.7
Carboxylic Acid 	3-5	Alcohol 	15-19
Arylammonium Ion 	4-5	Amide 	15-19
Imide 	8-9	Cyclopentadiene 	16
Thiol 	8-12	α -Hydrogen of Ketone 	18-20
Phenol 	9.24	α -Hydrogen of Ester 	23-25
Ammonium Ion $\text{H}_3\text{N}^+-\text{H}$	10	Alkyne $\text{HC}\equiv\text{C}-\text{H}$	25
β -Diketone 	10	Ammonia $\text{H}_2\text{N}-\text{H}$	38
Nitroalkane $\text{H}-\text{CH}_2\text{NO}_2$	10	Amine 	40
Alkylammonium Ion $\text{H}-\text{N}^+(\text{CH}_2\text{CH}_3)_3$	10-12	Alkene 	44
β -Ketoester 	11	Alkane $\text{H}_3\text{C}-\text{CH}_2-\text{H}$	51

Understanding the relative pK_a of various organic acids is critical. You are expected to memorize the pK_a values for all bolded compounds. You are also expected to be able to justify the observed pK_a values for all compounds shown on this table (we will cover cyclopentadiene in a few weeks)