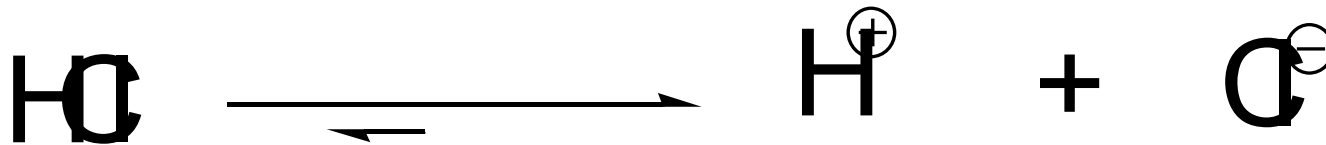


Kyselost a bazicita



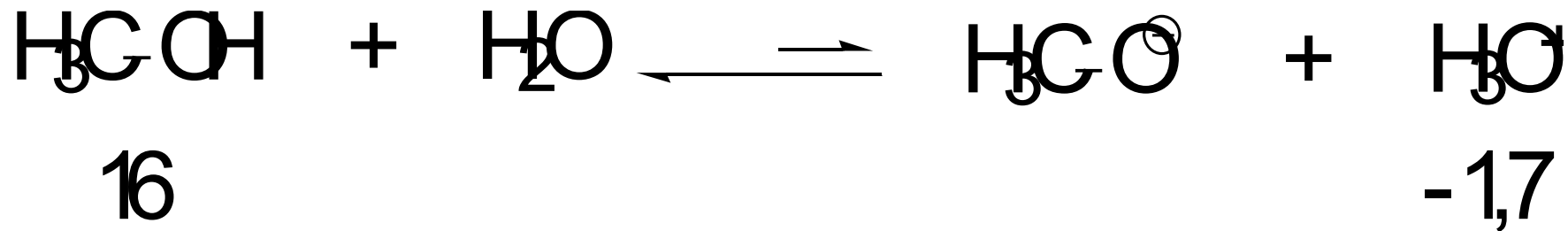
- » pK_a kyseliny závisí na stabilitě její konjugované báze
- » čím silnější HA, tím slabší A^-
- » čím silnější A^- , tím slabší AH



silná kyselina

konjugovaná báze je slabá





slabá kyselina

konjugovaná báze silná

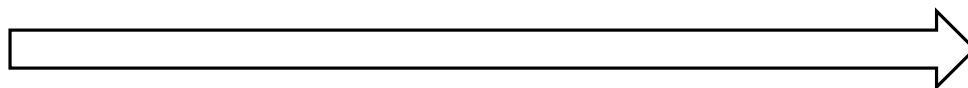
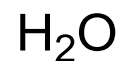
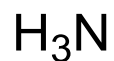
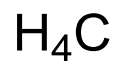
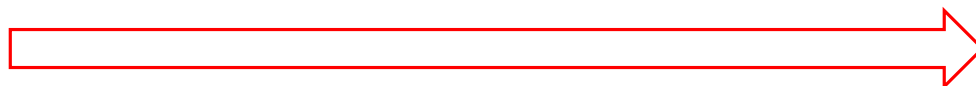


JAK ZJISTIT RELATIVNÍ KYSELOST NEBO BAZICITU ZE STRUKTURY LÁTKY



1. Který atom nese náboj?

růst elektronegativity



růst kyselosti

Hydrid	H-CH ₃	H-NH ₂	H-OH	H-F
pK _a	55	35	15.7	3.2

čím elektronegativnější prvek záporný náboj nese, tím je konjugovaná báze stabilnější



rüst velikosti A

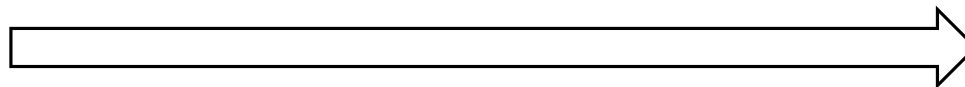


HF

HCl

HBr

HI

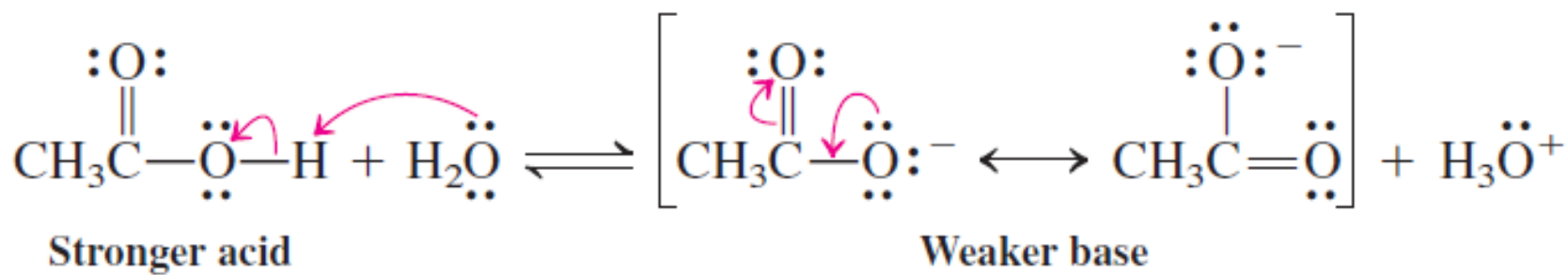
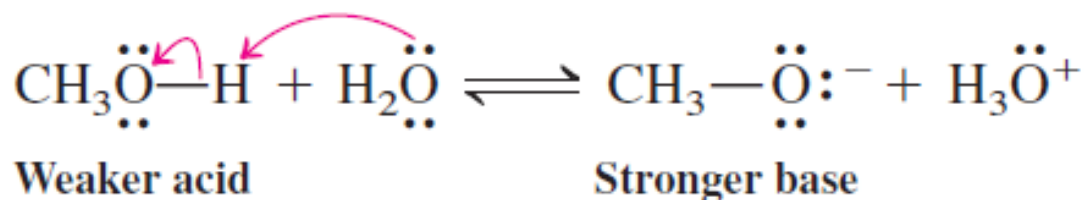


rüst kyselosti

HX	pK _a	HX	pK _a
HF	3.2	ROH	15-16
HCl	-7	RSH	10
HBr	-9	RSeH	-
HI	-9.5	RTeH	7



2. Delokalizace náboje v A⁻ - stabilizace



» delokalizace

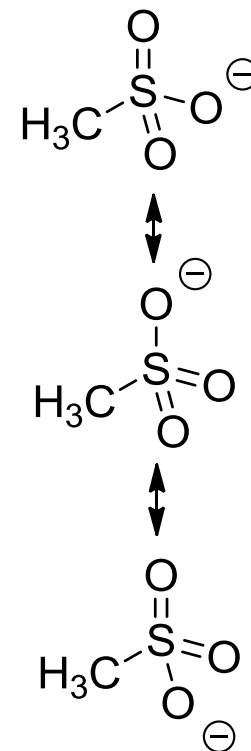
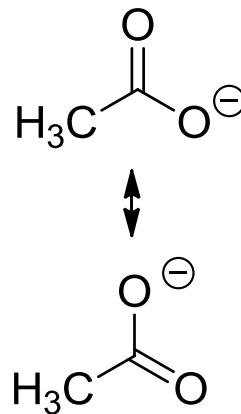
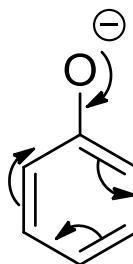
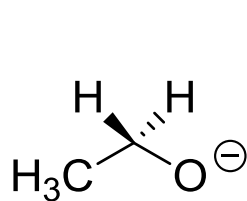
EtOH

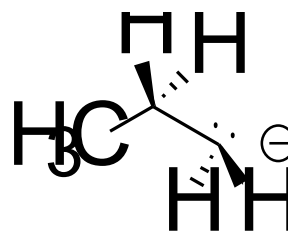
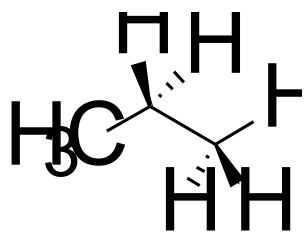
PhOH

CH₃COOH

CH₃SO₃H

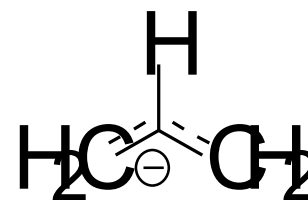
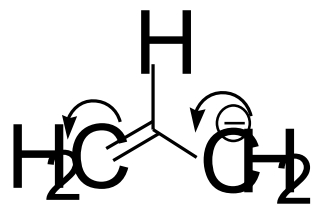
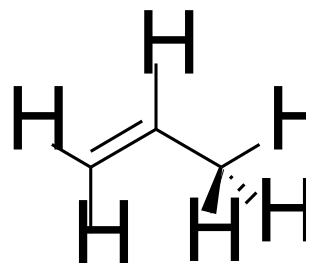
pK_a



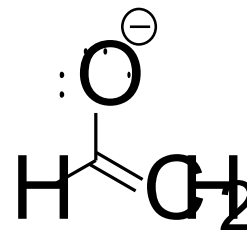
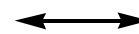
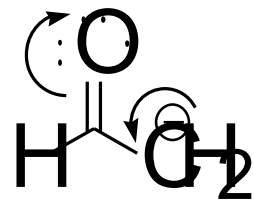
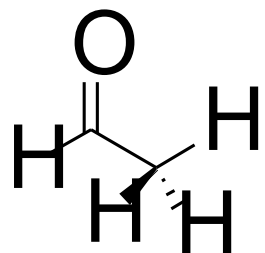


pr 3

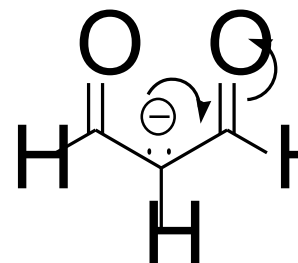
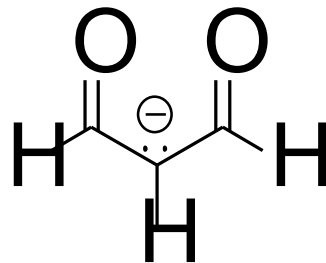
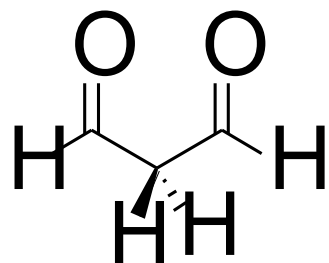
50



43



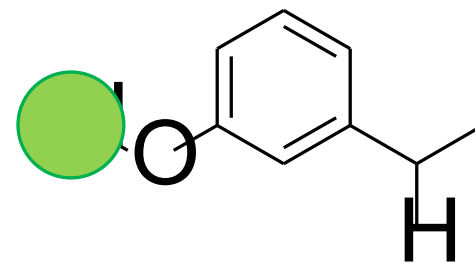
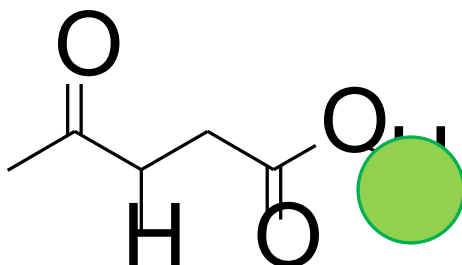
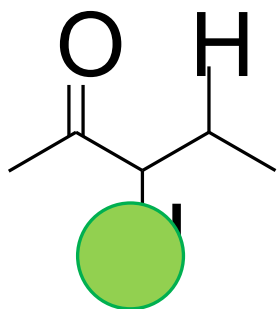
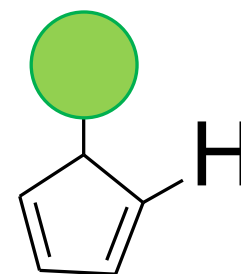
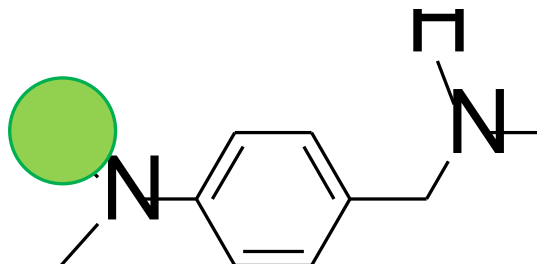
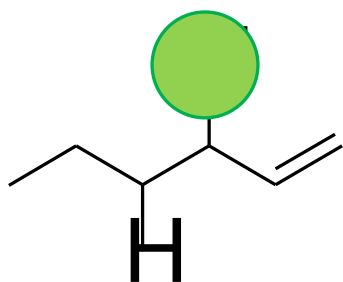
135



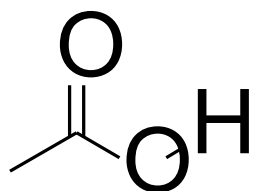
5



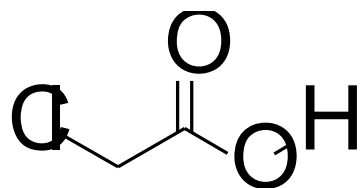
Který z vodíkových atomů v uvedené dvojici je kyselější



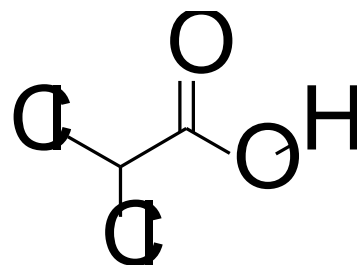
3. Vliv indukčního efektu



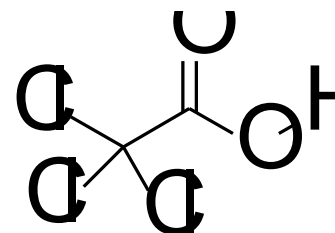
4,75



2,87

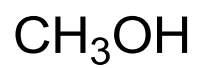


1,25

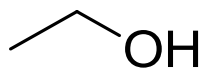


0,70

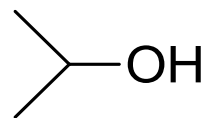




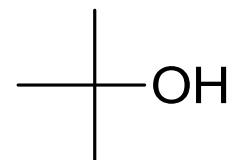
pK_a 15,5



16,0



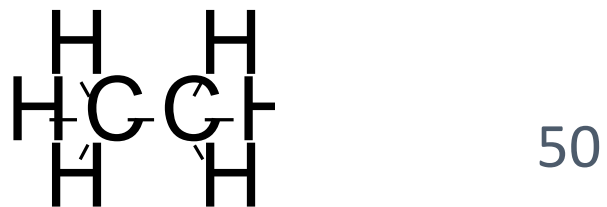
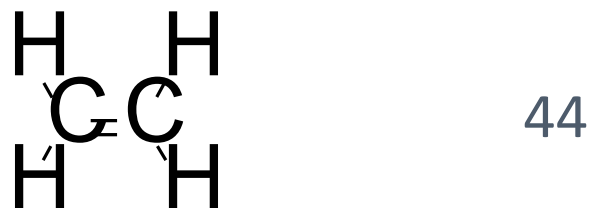
17,1



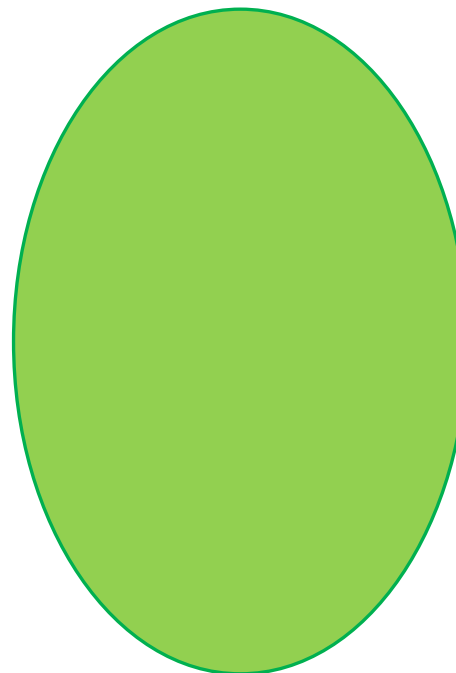
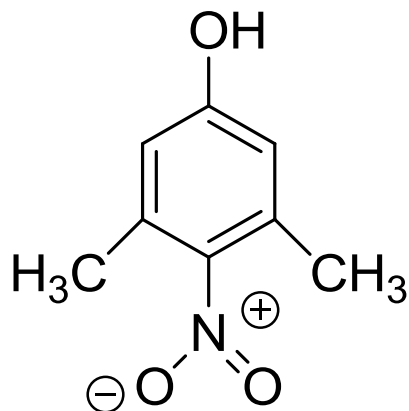
19,2



4. Vliv hybridizace



Která ze sloučenin je silnější kyselinou



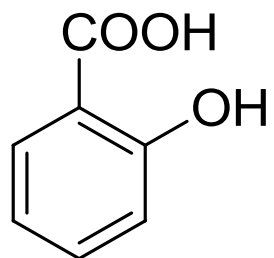
KYSELOST



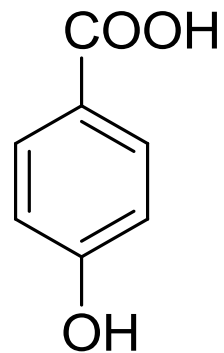
vychýlení z roviny, není dobrá konjugace,
mezomerní efekt zeslaben



Intramolekulární vodíková vazba



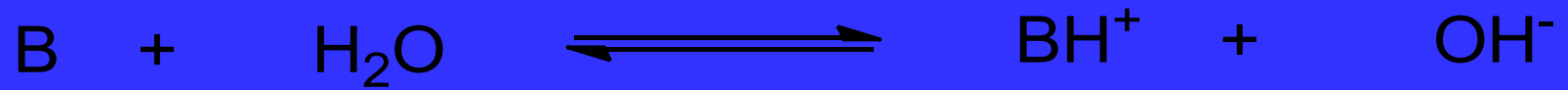
2,98



4,58



BAZICITA



$$K = \frac{[BH^+] \cdot [OH^-]}{[B] \cdot [H_2O]}$$

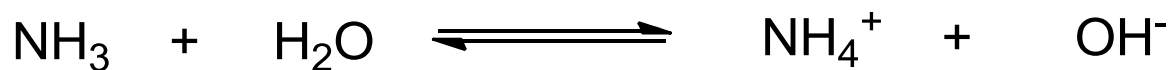
$$K \cdot [H_2O] = \frac{[BH^+] \cdot [OH^-]}{[B]} = K_B$$

$$K_B = \frac{[BH^+] \cdot [OH^-]}{[B]}$$

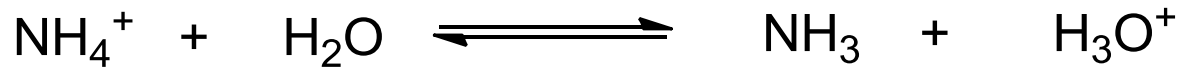




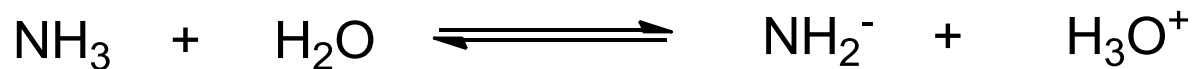
$$pK_{AH} + pK_B = 14$$



$$pK_B = 4,75$$

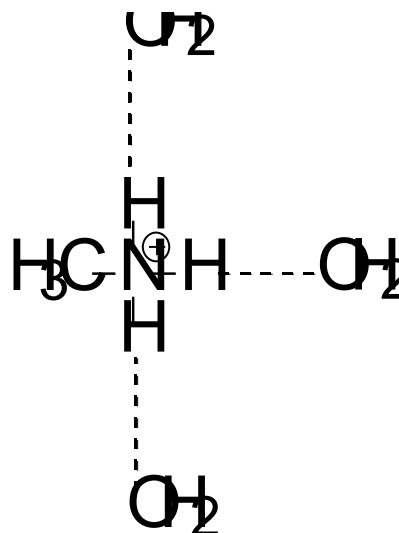
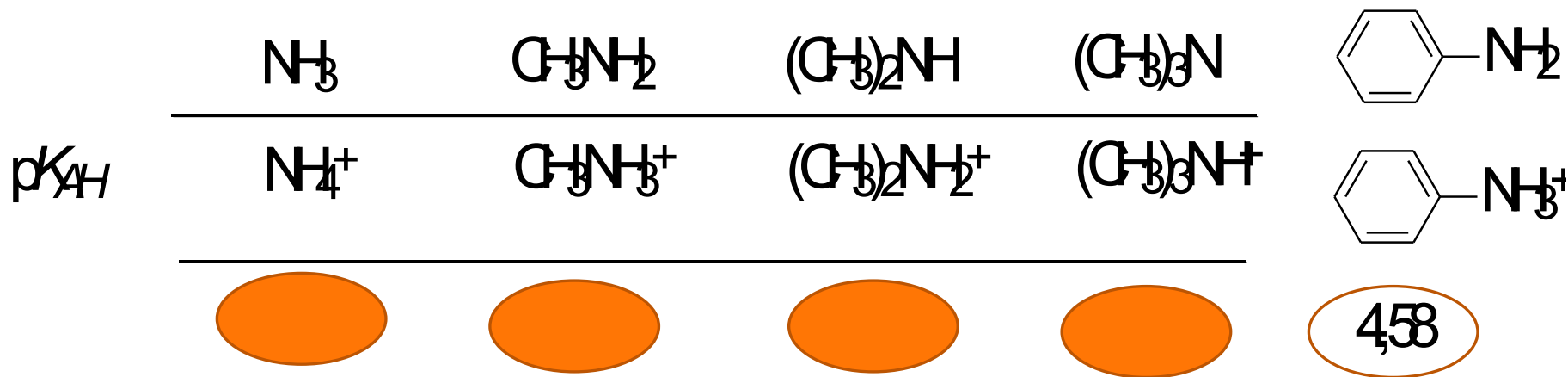


$$pK_{AH} = 9,25$$

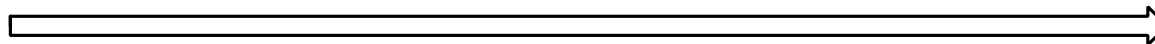
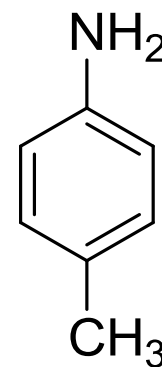
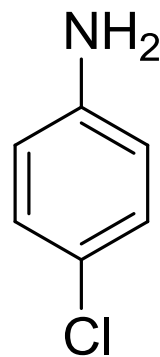
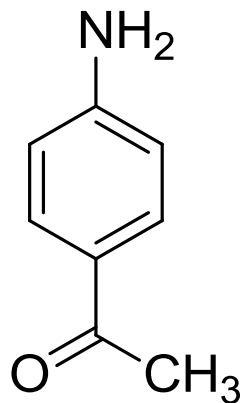
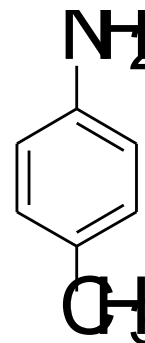
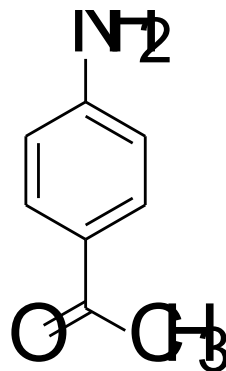
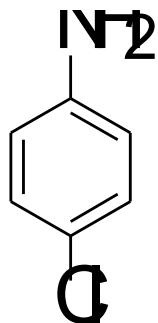


$$pK_A = 35$$





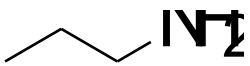
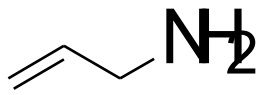
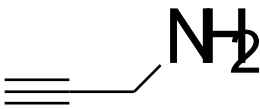
Seřadte podle vzrůstající bazicity



bazicita



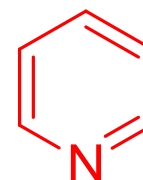
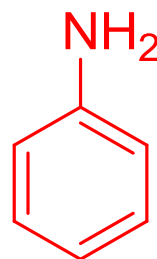
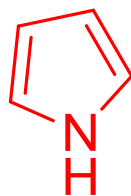
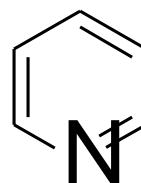
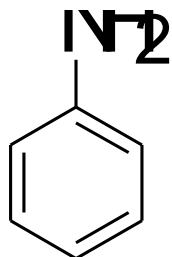
Která ze sloučenin je nejsilnější bázi

	pK_A
	10,7
	9,5
	8,2

vliv hybridizace na sousedním uhlíku



Uvedené sloučeniny seřadte podle vzrůstající bazicity



pK_{AH}

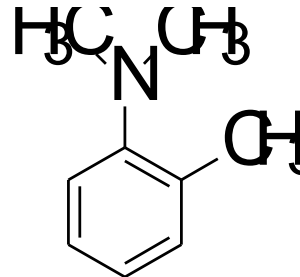
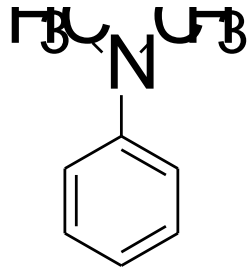
-3,8

4,63

5,25



Která ze sloučenin je silnější bázi



BAZIČNOST

pK_b 8,9

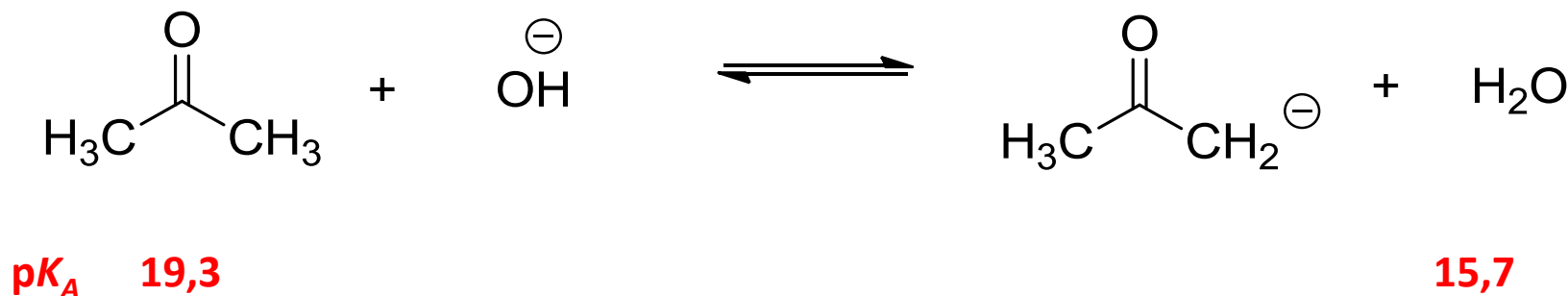
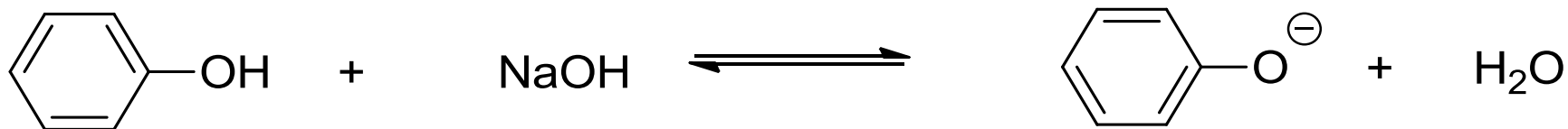
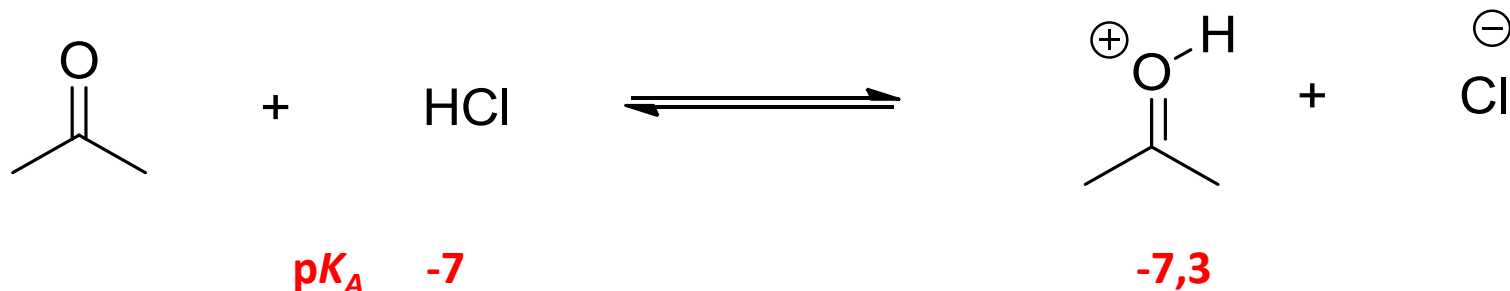
<

8,12

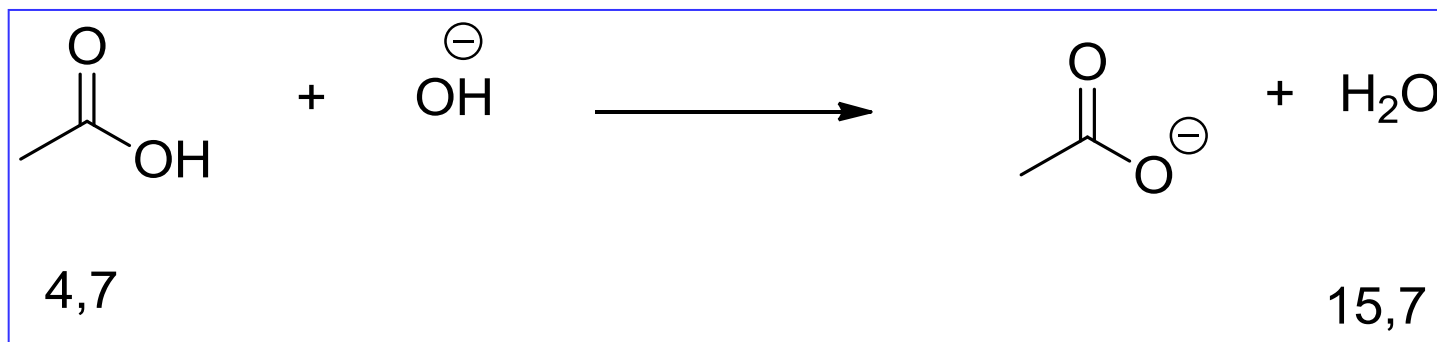
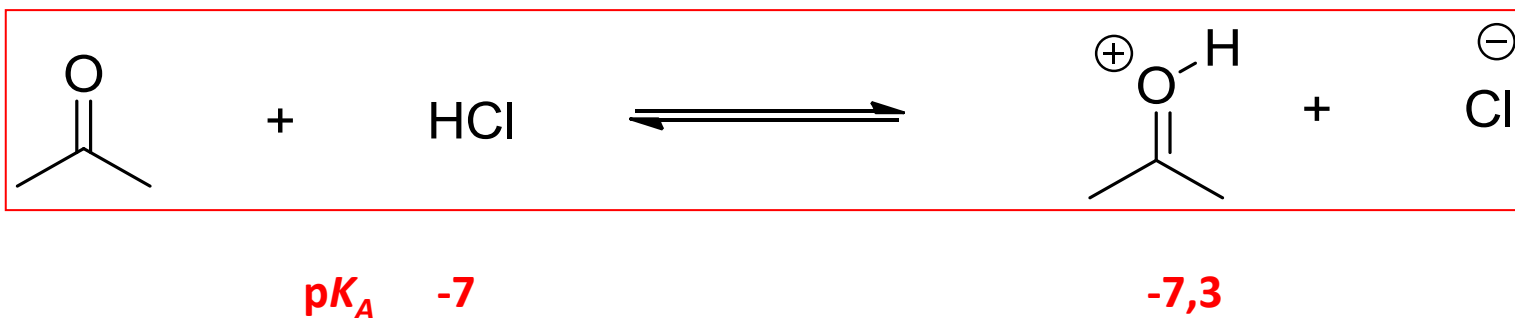
vzhledem k elektronové páuzroviny benzenového kruhu
není tak dobře stabilizována, více bazický amin



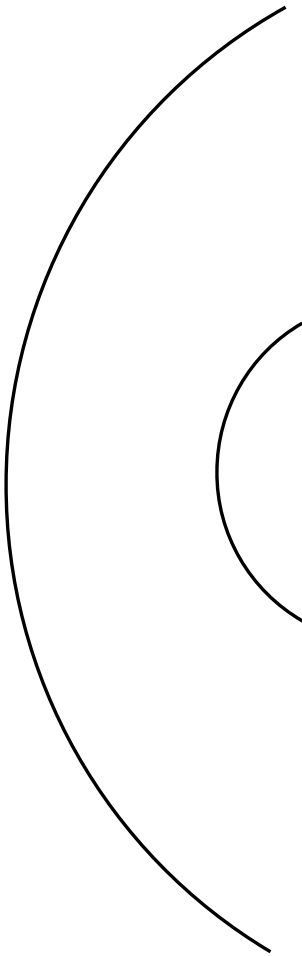
Kterým směrem bude posunutá rovnováha uvedené reakce



Kdy je acidobazická reakce považována za irreverzibilní?



E



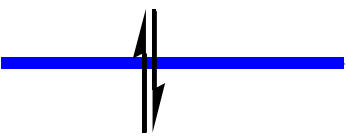
TK

LUMD



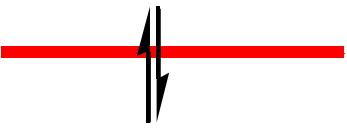
MK

LUMD



MB

HOMC



TB

HOMC



