

CHM 152

Quiz 4

Spring 2009  
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Name Key

1. (10) Calculate the pH of a .150 M solution of hydroxylamine,  $\text{HONH}_2(\text{aq})$ .

$K_b$  for hydroxylamine =  $1.1 \times 10^{-8}$

Show your work.

it's a base!



$$K_b = \frac{[\text{HONH}_3^+][\text{OH}^-]}{[\text{HONH}_2]} = 1.1 \times 10^{-8}$$

$$\frac{x^2}{.150-x} = 1.1 \times 10^{-8}$$

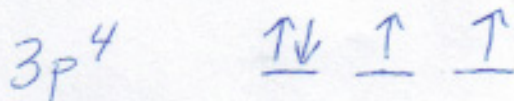
	i	c	e
$\text{HONH}_2$	.150	-x	.150-x
$\text{HONH}_3^+$	0	+x	x
$\text{OH}^-$	0	+x	x

$$[\text{OH}^-] = x = 4.1 \times 10^{-5}$$

$$\text{pOH} = 4.39$$

$$\text{pH} = 9.61$$

Bonus (2): How many unpaired electrons in a neutral, ground-state atom of sulfur?



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