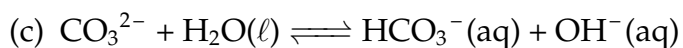
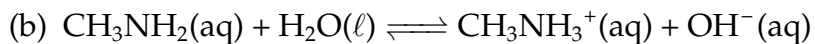
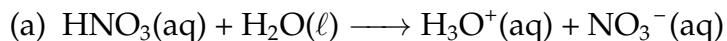


1. Identify the Bronsted-Lowry acid/base pairs (acid, base, conjugate base, conjugate acid) in the following reactions.



2. Write the formula for the conjugate base of each acid.



3. Write the formula for the conjugate acid of each base.



4. Answer with the correct number of significant figures.

(a)  $-\log(2.3 \times 10^{-5}) =$

(b)  $-\log(1.45 \times 10^{-8}) =$

(c)  $10^{-1.6} =$

(d)  $10^{-5.87} =$

5.  $\text{HCO}_3^-$  is amphoteric. Write a chemical reaction to show how it can act as an acid and another reaction to show how it can act as a base.

6. Calculate the missing components of the table (answer in the correct number of significant figures).

$[\text{H}_3\text{O}^+]$ (M)	$[\text{OH}^-]$ (M)	pH	pOH	Acidic or Basic?
$3.5 \times 10^{-3}$				
	$3.7 \times 10^{-7}$			
		4.25		
			2.92	

7. Like all equilibrium constants, the value of  $K_w$  depends on temperature. At body temperature ( $37^\circ\text{C}$ ),  $K_w = 2.4 \times 10^{-14}$ . What are the  $[\text{H}_3\text{O}^+]$  and pH of pure water at body temperature?