

Conjugate Acid/Base Pairs Practice

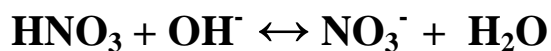
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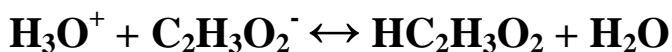
1. In each of the following reactions, identify the conjugate acid/base pairs:



A	B	CA	CB
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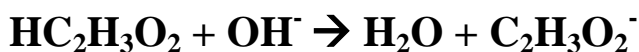
A	B	CB	CA
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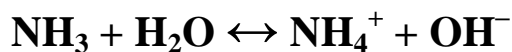
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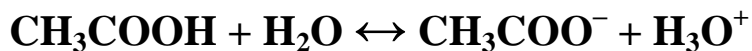
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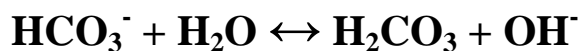
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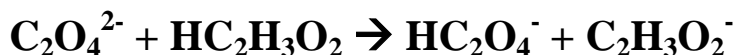
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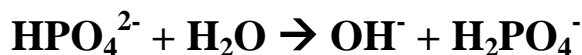
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2. Complete the following table:

Acid (A)	Base (B)	Conjugate Acid (CA)	Conjugate Base (CB)	Chemical Equation
		H ₂ O	ClO ₃ ⁻	
HSO ₄ ⁻	PO ₄ ³⁻			
				S ²⁻ + H ₂ O → OH ⁻ + HS ⁻
		NH ₄ ⁺	Cl ⁻	
				PO ₄ ³⁻ + HNO ₃ → NO ₃ ⁻ + HPO ₄ ²⁻

3. The compound NaOH is a BASE by all three theories (definitions) of acids & bases we have discussed in class. However, each of the three theories describes what a base is in different terms. Use your knowledge of these three theories to describe NaOH as an Arrhenius base, a Bronsted-Lowry base, and a Lewis base.

a. NaOH is an Arrhenius base because...

b. NaOH is a Bronsted-Lowry base because...

c. NaOH is a Lewis base because...

4. When hydrogen chloride (hydrochloric acid) reacts with ammonia, ammonium chloride is produced. Write the chemical equation for this reaction and indicate which reactant is the Lewis acid and which reactant is the Lewis base, and EXPLAIN WHY for both.

A) Chemical Equation:

B) Lewis Acid:

C) Lewis Base:

5. Determine the Conjugate Acid (CA) for each of the following:

a. H_2O _____

b. H_2PO_4^- _____

c. SO_4^{2-} _____

6. Determine the Conjugate Base (CB) for each of the following:

a. HCO_3^- _____

b. HSO_4^- _____

c. HPO_4^{2-} _____