

Brønsted-Lowry Acid-Base Worksheet

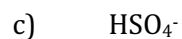
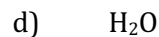
Name:

Date:

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1. Write the formula for a **proton**.
2. Write the formula for a **hydrated proton**.
3. Write the formula for a **hydronium** ion.
4. Give the **Arrhenius** definition of an **acid**.
5. Give the **Arrhenius** definition of a **base**.
6. Give the **Bronsted-Lowry** definition of an **acid**.
7. Give the **Bronsted-Lowry** definition of a **base**.
8. Given the equation: $\text{HCO}_3^- + \text{H}_2\text{S} \rightleftharpoons \text{H}_2\text{CO}_3 + \text{HS}^-$
 - a) The **acid** on the left side is
 - b) The **base** on the left side is
 - c) The **acid** on the right side is
 - d) The **base** on the right side is
9. Find the **conjugate acids** of each of the following bases:
 - a) HPO_4^{2-}
 - b) PO_4^{3-}
 - c) HSO_4^-
 - d) NH_3
 - e) H_2PO_4^-

10. Find the **conjugate bases** of each of the following:



11. Give the formulas of a conjugate acid/base pair in which the **dihydrogen citrate ion ($\text{H}_2\text{C}_6\text{H}_5\text{O}_7^-$) is the conjugate base.**

Conjugate acid _____ Conjugate base _____

12. Give the formulas of a conjugate acid/base pair in which the **dihydrogen citrate ion is the conjugate acid.**

Conjugate acid _____ Conjugate base _____

13. Is the dihydrogen citrate ion **amphiprotic**? Explain your answer.