

Conjugate Acid-Base Pairs

Fill in the missing information in the two tables about conjugate acids and bases.

Acid	Base	Conjugate Acid	Conjugate Base	Equation
HNO_2	H_2O			$\text{HNO}_2 + \text{H}_2\text{O} \rightarrow \text{NO}_2^- + \text{H}_3\text{O}^+$
H_2O	F^-	HF	OH^-	
				$\text{NH}_3 + \text{HCN} \rightarrow \text{NH}_4^+ + \text{CN}^-$
		H_2O	ClO_3^-	
HSO_4^-	PO_4^{3-}			
				$\text{H}_2\text{O} + \text{S}^{2-} \rightarrow \text{HS}^- + \text{OH}^-$
HCO_2H	OH^-			

Acid	Conjugate Base	Equation
H_3PO_4		
	F^-	
	NO_3^-	
H_2PO_4^-		
H_2O		
	SO_4^{2-}	
HPO_4^{2-}		

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Answers

Fill in the missing information in the two tables about conjugate acids and bases.

Acid	Base	Conjugate Acid	Conjugate Base	Equation
HNO_2	H_2O	H_3O^+	NO_2^-	$\text{HNO}_2 + \text{H}_2\text{O} \rightarrow \text{NO}_2^- + \text{H}_3\text{O}^+$
H_2O	F^-	HF	OH^-	$\text{H}_2\text{O} + \text{F}^- \rightarrow \text{HF} + \text{OH}^-$
HCN	NH_3	NH_4^+	CN^-	$\text{NH}_3 + \text{HCN} \rightarrow \text{NH}_4^+ + \text{CN}^-$
HClO_3	OH^-	H_2O	ClO_3^-	$\text{HClO}_3 + \text{OH}^- \rightarrow \text{H}_2\text{O} + \text{ClO}_3^-$
HSO_4^-	PO_4^{3-}	HPO_4^{2-}	SO_4^{2-}	$\text{HSO}_4^- + \text{PO}_4^{3-} \rightarrow \text{HPO}_4^{2-} + \text{SO}_4^{2-}$
H_2O	S^{2-}	HS^-	OH^-	$\text{H}_2\text{O} + \text{S}^{2-} \rightarrow \text{HS}^- + \text{OH}^-$
HCO_2H	OH^-	H_2O	CO_2H^-	$\text{HCO}_2\text{H} + \text{OH}^- \rightarrow \text{H}_2\text{O} + \text{CO}_2\text{H}^-$

Acid	Conjugate Base	Equation
H_3PO_4	H_2PO_4^-	$\text{H}_3\text{PO}_4 \rightleftharpoons \text{H}^+ + \text{H}_2\text{PO}_4^-$
HF	F^-	$\text{HF} \rightleftharpoons \text{H}^+ + \text{F}^-$
HNO_3	NO_3^-	$\text{HNO}_3 \rightleftharpoons \text{H}^+ + \text{NO}_3^-$
H_2PO_4^-	HPO_4^{2-}	$\text{H}_2\text{PO}_4^- \rightleftharpoons \text{H}^+ + \text{HPO}_4^{2-}$
H_2O	OH^-	$\text{H}_2\text{O} \rightleftharpoons \text{H}^+ + \text{OH}^-$
HSO_4^-	SO_4^{2-}	$\text{HSO}_4^- \rightleftharpoons \text{H}^+ + \text{SO}_4^{2-}$
HPO_4^{2-}	PO_4^{3-}	$\text{HPO}_4^{2-} \rightleftharpoons \text{H}^+ + \text{PO}_4^{3-}$