SOLUTIONS TO # 7 on p 593

So they want you to look at two scenarios(equations) and identify who gave up a hydrogen and who received it BECAUSE ACCORDING TO THE BRONSTED-LOWRY THEORY(one of three equally valuable and limited in its own way "models" of acid-base chemistry) AN **ACID** IS SOMETHING THAT **DONATES HYDROGEN** IONS and a ***BASE*** IS SOMETHING THAT ***ACCEPTS HYDROGEN*** IONS

SO.....

Remember that when an H2O picks up a Hydrogen ion(H+) it then becomes an **Hydronium Ion(H3O+**)

THEREFORE.....

HNO3 + H2O > H3O+ + NO3-

Now.....

LOOK AT THE EQUATION ABOVE AND **FOLLOW THE HYDROGEN!!**

HNO3 gave up a H !!!!!! So it's the Hydrogen Donor!!!!!!! So according to the Bronsted-Lowry definition, HNO3 is the ACID

and this part is a little confusing.....

THE GUY ON THE PRODUCT SIDE WHO LOST THE H and is now just NO3-(negative because it lost a charge, it lost a H !!!!) has a special name because it is LINKED FOREVER IN A RELATIONSHIP with the original HNO3 and that name is the .....

CONJUGATE BASE

SO..... in that equation ***HNO3 is the Bronsted Acid and NO3- is ITS CONJUGATE BASE***

THEN.....

Looking at the same equation in the red above.....

H2O was the Hydrogen ion ACCEPTOR(becoming H3O as a result), so..... according to the definition IN THIS EQUATION H2O was the Bronsted BASE, and following the logic above.....

the thing it is **LINKED FOREVER IN A RELATIONSHIP WITH**(the H3O it ***becomes*** when playing this "pass the Hydrogen" game) is .....

the **CONJUGATE ACID** !!!!!!!!!!!!!!!!

NOW YOU TRY IT WITH

$CO_3^{2-} + H_2O > HCO_3^- + OH^-$ and notice the charge of CO_3^{2-} goes to (-1) when it picks up a Hydrogen(H^+) to become HCO_3^- !