

Bronsted Lowry Definiton of Acids
Chemistry: <http://genest.weebly.com>
Stop in for help every day at lunch and Tues, & Thurs after school!

B

Name _____
Period _____

HINTS FOR SOLVING TONIGHT'S HOMEWORK

19. The following substances act as Bronsted acids in water. Write a chemical equation for each that illustrates its reaction with water.

ammonium ion, NH_4^+	
H_3PO_4	$\text{H}_3\text{PO}_4 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{PO}_4^- + \text{H}_3\text{O}^+$
HBr	

20. The following substances act as Bronsted bases in water. Write a chemical equation for each that illustrates its reaction with water.

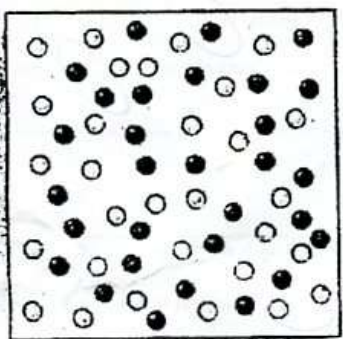
CHOO^-	
hydride ion: H^-	$\text{CHOO}^- + \text{H}_2\text{O} \rightarrow \text{HCOO}^- + \text{OH}^-$

CLASS NOTES

In each case below, redraw the molecules of the aqueous solution in the first box into the second box with the following changes:

- add ten HOH water molecules.
- show each ion or molecule as its formula, not as a circle.
- draw charges on anything that is an ion
- answer the first two questions in the third box

0.010 M Hydrochloric acid

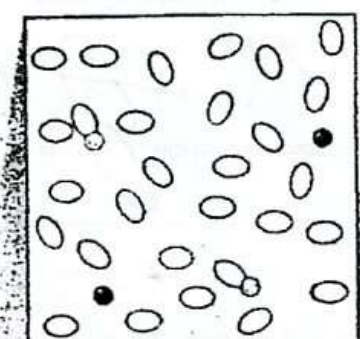


OH⁺ Cl⁻

HOH HOH H⁺ H⁺ Cl⁻
 HOH H⁺ HOH H⁺ Cl⁻ Cl⁻
 H⁺ HOH Cl⁻ H⁺ Cl⁻
 H⁺ HOH Cl⁻
 HOH H⁺ Cl⁻
 H⁺ HOH Cl⁻ Cl⁻
 HOH H⁺ Cl⁻

- which are there more of?
(ions / neutral molecules)
- which ion is there more of?
(OH⁻ / H₃O⁺ / H⁺)
- turns indicator paper which color?
(blue / red)
- pH is (<7 / 7 / >7)
- conducts electricity? (yes / no)

0.010 M Ammonia



NH₄⁺ OH⁻ NH₃

you can check your answers →

- which are there more of?
(ions / neutral molecules)
- which ion is there more of?
(OH⁻ / H₃O⁺ / H⁺)
- turns indicator paper which color?
(blue / red)
- pH is (<7 / 7 / >7)
- conducts electricity? (yes / no)

CLASS NOTES

<p>0.010 M Formic acid</p> <p>○ OH⁺ ● CHOO⁻ ● CHO^oH</p>	<p>correct answers →</p>	<p>i. which are there more of? (ions / neutral molecules)</p> <p>ii. which ion is there more of? (OH⁻ / H₃O⁺ / H⁺)</p> <p>iii. turns indicator paper which color? (blue / red)</p> <p>iv. pH is (<7 / 7 / >7)</p> <p>v. conducts electricity? (yes / no)</p>
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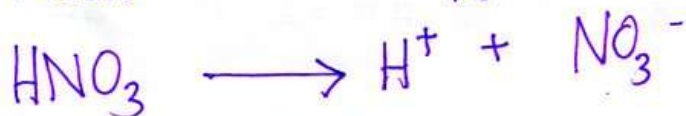
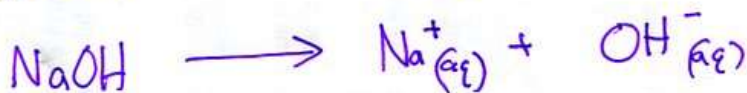
<p>0.010 M Sodium hydroxide</p> <p>○ Na⁺ ● OH⁻</p>	<p>correct answers →</p>	<p>i. which are there more of? (ions / neutral molecules)</p> <p>ii. which ion is there more of? (OH⁻ / H₃O⁺ / H⁺)</p> <p>iii. turns indicator paper which color? (blue / red)</p> <p>iv. pH is (<7 / 7 / >7)</p> <p>v. conducts electricity? (yes / no)</p>
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FINISH AND GET A STAMP

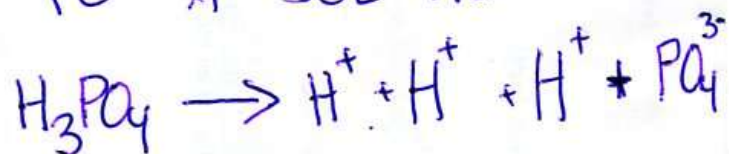
PURPOSE How Do WE
IDENTIFY ACIDS FROM
JUST THEIR FORMULA?

WARMUP: "A BASE WILL
TASTE BITTER AND FEEL
SLIPPERY."

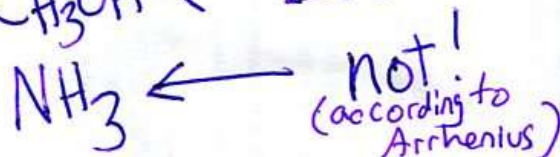
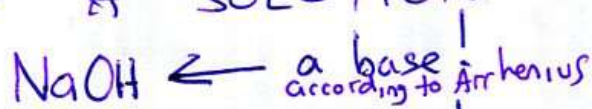
#1 FOR EACH, WRITE WHAT
IT DISSOCIATES INTO IN WATER



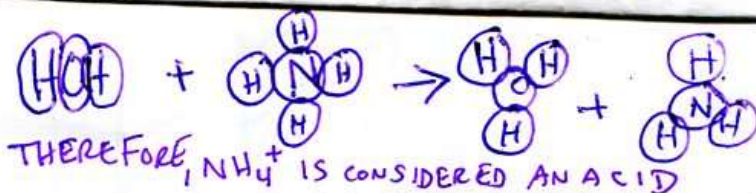
#2 ARRHENIUS SAID AN ACID IS SOMETHING THAT GIVES H^+ TO A SOLUTION

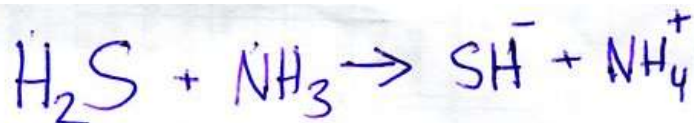


#3 ARRHENIUS SAID A BASE GIVES OH^- TO A SOLUTION



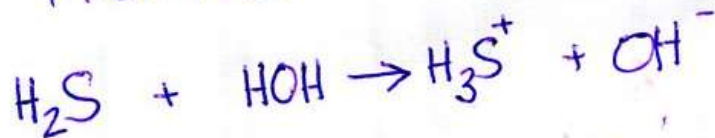
#4 BRONSTED-LOWRY SAID ACIDS DONATE PROTONS (H^+)



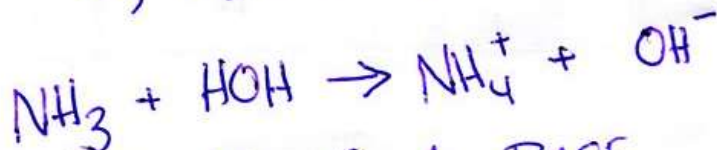


SO, therefore, H_2S is an acid

#5 BRONSTED - LOWRY
SAID BASES ACCEPT
PROTONS



SO, H_2S IS A BASE



SO, NH_3 IS A BASE

distinguish acids and bases

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A

Name
Period

ANSWERS

Answer the questions below by circling the number of the correct response

For each of the phrases below (questions 1-11), write the correct number in the appropriate place on the answer sheet to indicate whether the compound described is (1) AN ACID ONLY (2) A BASE ONLY, (3) AN ACID OR A BASE, or (4) NEITHER AN ACID NOR A BASE.

1. Feels slippery to the touch 2
2. Tastes bitter 2
3. Contains some hydronium ions 1
4. Increases the hydroxide ion concentration of water 2
5. Increases the hydronium ion concentration of water 1
6. Has a pH of 2 1
7. Product of a neutralization reaction 4
8. Aqueous solution conducts electricity 3
9. C_2H_5OH 4
10. Turns phenolphthalein colorless 1
11. Has a hydronium ion concentration of $10^{-9} M$ 1

We'll learn this Friday