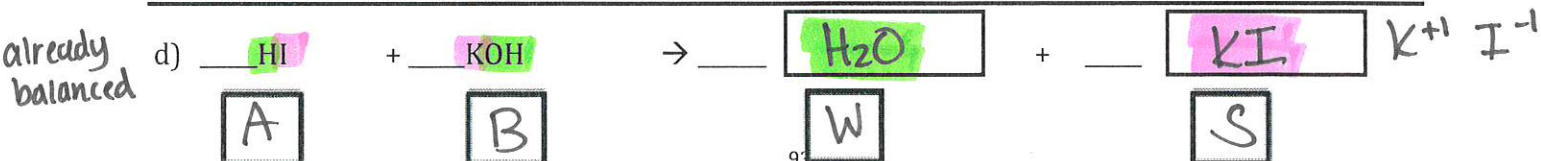
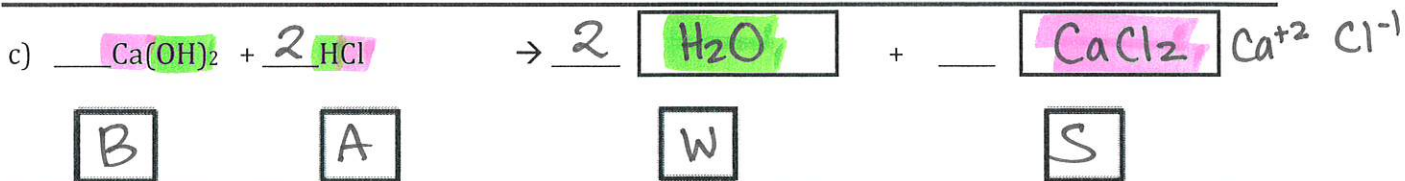
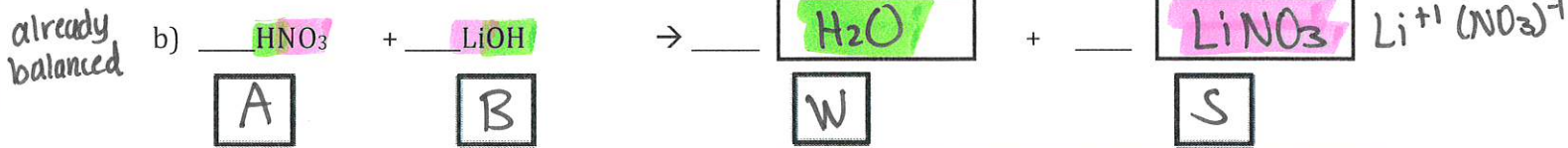
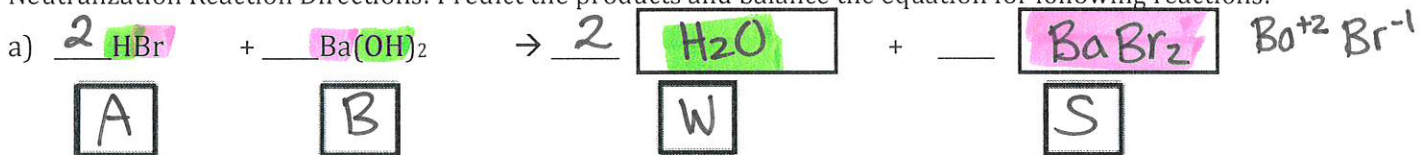


H⁺/ Acid, Base and pH Test Review

- An acid produces H₃O⁺ in water. A base produces OH⁻ in water.
- Your test will also use H⁺ (hydrogen) and H₃O⁺ (hydronium) interchangeably.
- Strong acids and bases make strong electrolytes because the compound would dissociate completely. This would make a light bulb shine bright.
- Weak acids and bases make weak electrolytes because the compound would not dissociate completely. This would make a light bulb shine dim.
- Complete the table.

Name	Formula	Type? (A or B)	Strong or weak	Intensity of lightbulb	Many or Few Ions
hydrofluoric acid	HF	A	S W	Dim	few
lithium hydroxide	LiOH	B	Strong	B	many
Hydrosulfuric acid	H ₂ S	A	Weak	D	few
perchloric acid	HClO ₄	A	S	Bright	many
Calcium hydroxide	Ca(OH) ₂	B	S	Bright	many
Chlorous acid	HClO ₂	A	Weak	D	few
nitrous acid	HNO ₂	A	W	Dim	few
barium hydroxide	Ba(OH) ₂	B	Strong	B	many
Sulfuric acid	H ₂ SO ₄	A	Strong	B	many
IGNORE	NH ₃			Dim	IGNORE

6. Neutralization Reaction Directions: Predict the products and balance the equation for following reactions:



7. Complete the following chart about conductivity data.

Solution	Conducts Electricity	Intensity of Light bulb	Weak or Strong?	Acid or Base?	Many or Few ions
HF	Yes	Dim	W	A	few
NaOH	Yes	Bright	S	B	many
NH₃	Yes	Dim	W	A	many
H ₂ SO ₄	Yes	Bright	S	A	many

IGNORE

8. An acid-base reaction **produces** water (H₂O) and magnesium chloride (MgCl₂), a salt. What were the likely **reactants**? (Think backwards!)

~~don't worry~~ about this ~~!~~

but the answer is HCl & Mg(OH)₂

9. An acid-base reaction **produces** water (H₂O) and lithium sulfate (Li₂SO₄), a salt. What were the likely **reactants**? (Think backwards!)

~~don't worry~~ about this ~~!~~

H₂SO₄ & LiOH

10. Solution A has a pH of 6, and Solution B has a pH of 4. Which solution has more hydronium ions (H₃O⁺)?
acid

Solution B
more acidic

11. Solution A has a pH of 6, and Solution B has a pH of 4. Which solution has more hydroxide ions (OH⁻)?
base

Solution A
closer to above 7 (being a base)

12. Solution A has a pH of 10, and Solution B has a pH of 4. Which solution has more hydronium ions (H₃O⁺)?
acid

Solution B
lower pH

13. A solution is prepared with a hydronium ion (H₃O⁺) concentration of 2.6 x 10⁻⁵ M. What is the pH of the solution?

$$-\log [2.6 \times 10^{-5}] = 4.59$$

Acidic

14. Complete the chart:

$[\text{H}_3\text{O}^+]$ or $[\text{H}^+]$	pH	Acidic or Basic?	What is there more of? H_3O^+ or OH^-
$2.13 \times 10^{-2} \text{ M}$	1.67	A	$[\text{H}_3\text{O}^+]$
$1.66 \times 10^{-14} \text{ M}$	13.78	B	$[\text{OH}^-]$
$1.00 \times 10^{-7} \text{ M}$	7	N	equal $[\text{H}^+]$ & $[\text{OH}^-]$
$2.0 \times 10^{-8} \text{ M}$	7.70	B	$[\text{OH}^-]$
$1.29 \times 10^{-10} \text{ M}$	9.89	B	$[\text{OH}^-]$
$7.76 \times 10^{-3} \text{ M}$	2.11	A	$[\text{H}_3\text{O}^+]$
$7.2 \times 10^{-4} \text{ M}$	3.14	A	$[\text{H}_3\text{O}^+]$

15. Complete the following chart about conductivity data.

pH of Solution	Intensity of Light bulb	Weak or Strong?	Acid or Base?	Completely/ partially	Many or few
1.9	Dim	W	A	partially	few
8.2	Bright	S	B	completely	many
10.8	Dim	W	B	completely partially	many few
5.5	Bright	S	A	completely	many