

Toxins Unit Review

CLASS COPY

Please do not write on!

Acid and Bases

1. What are the colors produced with universal indicator and litmus paper for an acid, base, and neutral?
2. Find the pH of each solution and determine if it is an acid, base, or neutral substance.
 - a). $[H^+] = 0.0001 \text{ M}$
 - b). $[OH^-] = 0.000001 \text{ M}$
 - c). $[H^+] = 1.0 \times 10^{-3} \text{ M}$
 - d). $[OH^-] = 1.0 \times 10^{-9} \text{ M}$
 - e). $[H^+] = 2.5 \times 10^{-3} \text{ M}$
 - f). $[OH^-] = 4.5 \times 10^{-10} \text{ M}$
 - g) $pOH = 3.5$
 - h) $pOH = 7.7$
3. What is the difference between the Arrhenius and Brønsted-Lowry definition of an acid and base?
4. Label each substance acid, Arrhenius base, Brønsted-Lowry base, or neutral.

a. HF	b. HNO_3	c. CH_3NH_2	d. NH_3	e. N_2H_4
f. $HC_2H_3O_2$	g. C_3H_6O	h. LiCl	i. C_2H_6	j. $SrCl_2$
k. HI	l. C_2H_4O	m. H_2O	n. H_3PO_4	o. CH_3OH
5. How do you neutralize an acid?

Solutions

6. Define a solute, solvent, and solution. What are two ways to make a solution?
7. How many moles of vinegar are in a 0.67M solution that is 1.2 L in volume?
8. What is the molarity of a solution of 2.8 moles nitric acid prepared in 250 mL water?
9. If you have 35g NaCl dissolved in 750 mL of water, what is the molarity?
10. 45g of $Ca(OH)_2$ was used to make a 2.0M solution. How much water was used?

Chemical Reactions

11. What are the four types of chemical reactions we have learned? Give an example of all four types.
12. Complete the following reactions and then balance them.
 - a. $CuCl_2 + Al_2(SO_4)_3 \rightarrow \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$
 - b. $Ba(OH)_2 + LiF \rightarrow \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

Moles

13. Answer the following questions about a mole.

- a. How many atoms are in 1 mole of Au, gold?
- b. How many molecules are in 2 mole of H₂O, water?
- c. How many atoms are in 0.5 moles of Fe, iron?

14. What is the molar mass of Al₂(SO₄)₃?

15. Answer the following questions about the relationship between mole and mass.

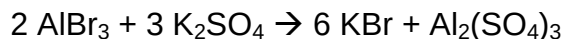
- a. How many moles are in 1.5 grams of H₂O, water?
- b. How many grams are 0.55 moles of H₂O, water?

16. Answer the following questions about the relationship between moles, mass, and atoms.

- a. How many molecules are in 66.0 grams of NaCl, sodium chloride?
- b. How many grams are in 3.80×10^{22} atoms of Cu, Copper?

Stoichiometry

Use the following double displacement reaction to answer the following questions.



17. How many moles of AlBr₃, aluminum bromide, will produce 2.5 moles of KBr, potassium bromide?

18. How many grams of K₂SO₄, potassium sulfate, will be needed to produce 1.50 moles of Al₂(SO₄)₃, aluminum sulfate?

19. How many moles of KBr, potassium bromide, will be produced if there is 25.0 grams of AlBr₃, aluminum bromide?

20. How many grams of AlBr₃, aluminum bromide, are needed to produce 175 grams of K₂SO₄, potassium sulfate?

**** Make sure you still review all your notes, making sense, and exercise pages in your notebook.**