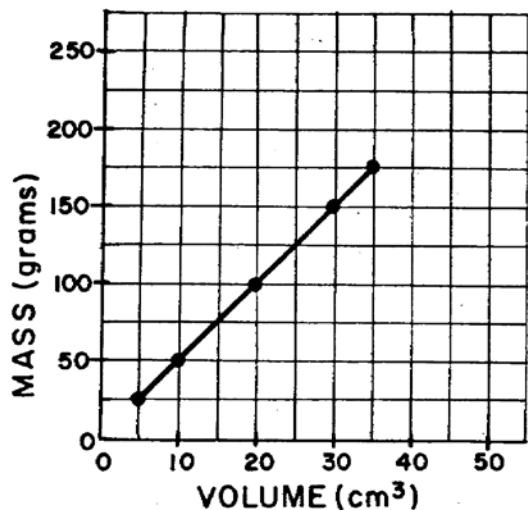


CHM 130LL

FINAL EXAM REVIEW EXAMPLES

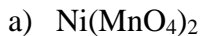
1. Using the mass/volume graph determine the following:

- a) the slope of the graph
- b) the mass of 25.0 cm<sup>3</sup> of the substance



2. A silver metal piece weighing 194.3 g is placed in a graduated cylinder containing 242.0 mL of water. The volume of water now reads 260.5 mL. From these data calculate the density of silver. (*Answer: 10.5 g/cm<sup>3</sup>*)

3. Name the given compounds:



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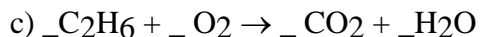
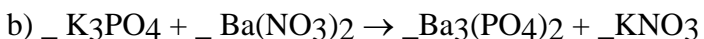
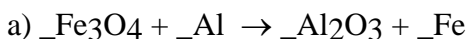


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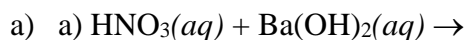
4. Write the formulas of the following compounds:

- a) barium arsenate
- b) cobalt(II) phosphide
- c) hydroselenic acid

5. Balance the following equations. Determine the type of reaction each one represents.



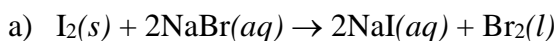
6. Complete and balance the given equation. Write the total ionic and net ionic equation.



7. Using the provided information, order the iron, zinc, and lead by decrease in activity in single-replacement reactions:

- 1) When iron metal was reacted with  $Zn(NO_3)_2$  solution there was no reaction.
- 2) When zinc metal was reacted with a solution of  $Pb(NO_3)_2$  plating on the metal piece was observed.
- 3) When lead metal was reacted with a  $Fe(NO_3)_2$  solution there was no reaction.

8. Identify the oxidizing and the reducing agent in the given reaction:



9. Report the answers of the following calculations with the appropriate number of significant figures:

$$\frac{13.602 \times 1.90 \times 3.06}{4.2 \times 1.4097} =$$

a)

b)  $16.18 \text{ cm} \times 9.6114 \text{ g} \div 1.4783 \text{ cm}^2 =$

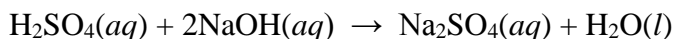
10. Calculate the percent by mass of carbon in morphine,  $\text{C}_{17}\text{H}_{19}\text{NO}_3$ . (*Answer: 71.60%*)

11. A 170.0-g sample of metal at  $78.0^\circ\text{C}$  is added to 170.0 g of  $\text{H}_2\text{O}(l)$  at  $15.0^\circ\text{C}$  in an insulated container. The temperature rises to  $17.9^\circ\text{C}$ . Calculate the specific heat of the metal? The specific heat of  $\text{H}_2\text{O}(l)$  is  $4.18 \text{ J}/(\text{g} \cdot ^\circ\text{C})$ . (*Answer: 0.206 J/(g°C)*)

12. Water is added to 25.0 mL of 0.866 M  $\text{KNO}_3$  solution until the volume of the solution is exactly 500. mL. What is the molarity of the final solution? (*0.0433 M*)

13. Calculate the molarity of a solution prepared by dissolving 6.57 g of  $\text{CH}_3\text{OH}$  in  $1.50 \times 10^2$  mL of solution. (*Answer: 1.37 M*)

14. The reaction of  $\text{H}_2\text{SO}_4$  with  $\text{NaOH}$  is represented by the equation



What is the molarity of the  $\text{H}_2\text{SO}_4$  solution if 10.0 mL of it are neutralized by using 45.10 mL of 0.432 M  $\text{NaOH}$  solution? (*Answer: 0.974 M*)