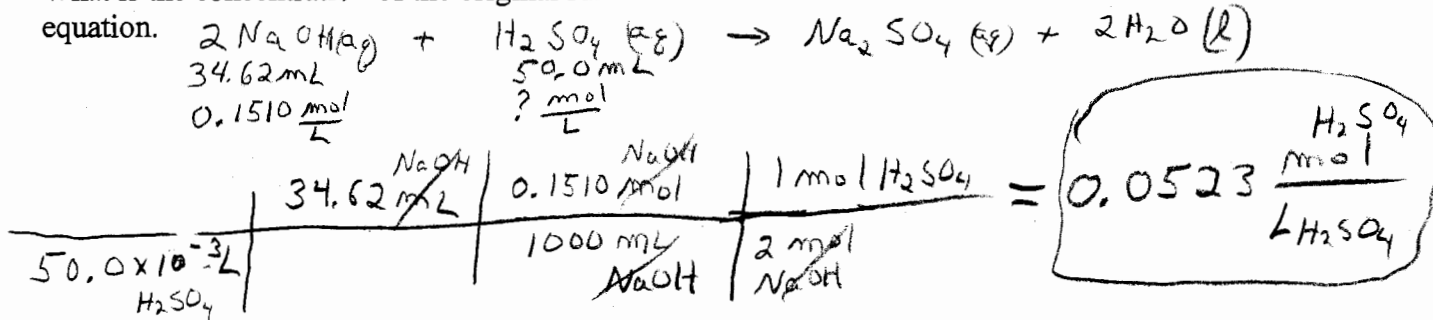
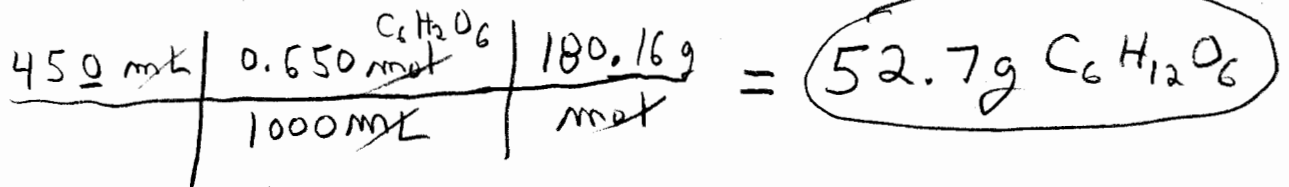


Show all work to receive credit. Use of a cell phone will result in a zero.

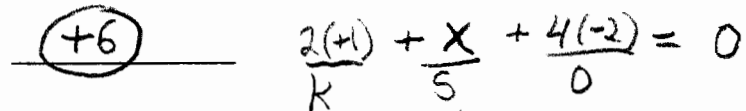
1. (5 Pts) 34.62 mL of 0.1510 M NaOH was needed to neutralize 50.0 mL of an H₂SO₄ solution. What is the concentration of the original sulfuric acid solution? You must first write the balanced equation.



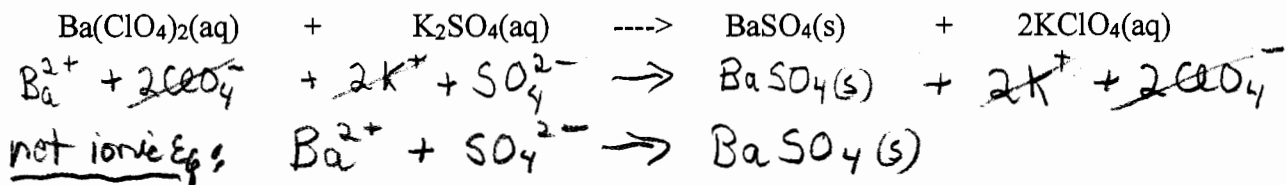
2. (4 Pts) What mass of C₆H₁₂O₆ (glucose) is needed to prepare 450. mL of a 0.650 M solution of glucose in water? Atomic Masses: C 12.01, H 1.008, O 16.00.



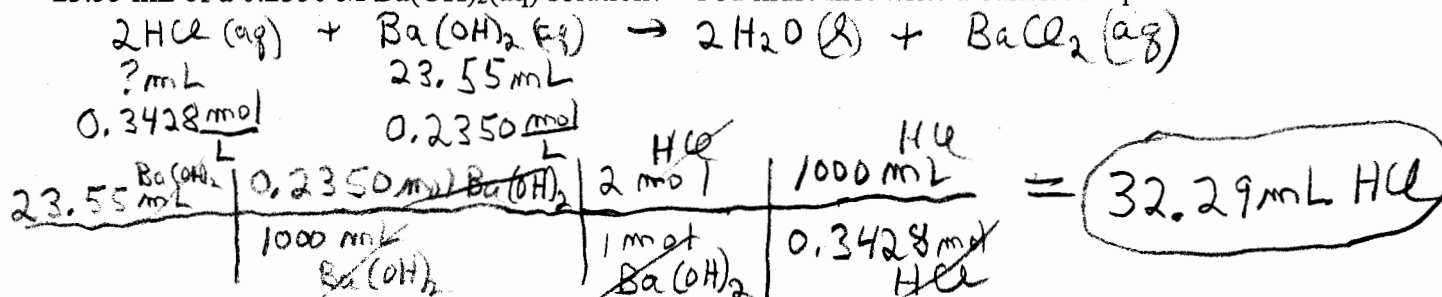
3. (2 Pts) The oxidation number of S in K₂SO₄ is



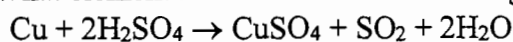
4. (2 Pts) Write the correct net ionic equation for the reaction that occurs when solutions of Ba(ClO₄)₂ and K₂SO₄ are mixed.



5. (4 Pts) What volume (mL) of a 0.3428 M HCl(aq) solution is required to completely neutralize 23.55 mL of a 0.2350 M Ba(OH)₂(aq) solution? You must first write a balanced equation.



6. (2 Pts) What element is reduced in the following chemical reaction?



S is reduced from 6+ → 4+ (gains e⁻s)

There are more question on the back.

Key

7. (2 Pts) In the following chemical reaction the *oxidizing agent* is
 $5\text{H}_2\text{O}_2 + 2\text{MnO}_4^- + 6\text{H}^+ \rightarrow 2\text{Mn}^{2+} + 8\text{H}_2\text{O} + 5\text{O}_2$

MnO_4^- is the oxidizing agent. Mn goes from a +7 to a 2+ (gains 5 e's)

8. (4 Pts) A 20.00 mL sample of 0.1015 M nitric acid is introduced into a flask, and water is added until the volume of the solution reaches 250. mL. What is the concentration of nitric acid in the final solution?

Dilution problem $M_1 V_1 = M_2 V_2$

$$(0.1015 \text{ M})(20.00 \text{ mL}) = M_2 (250 \text{ mL})$$

$$M_2 = 0.00812 \text{ M}$$

$$\text{or } 8.12 \times 10^{-3} \text{ M}$$