

Name Key Name _____
 (print name) (signature)

NA = not attempted

Please show all work for full credit.

1. To calculate mass percent of oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

$$\text{mass \% oxygen} = \frac{\text{(a) } 16.0 \text{ g} \quad \text{(b) } 2 \times 16.0 \text{ g} \quad \text{(c) } 2 \times 1.01 \text{ g} \quad \text{(d) } [(2 \times 1.01) + 16.0] \text{ g}}{\text{(a) } 16.0 \text{ g} \quad \text{(b) } 2 \times 16.0 \text{ g} \quad \text{(c) } 2 \times 1.01 \text{ g} \quad \text{(d) } [(2 \times 1.01) + 16.0] \text{ g}} \times 100$$

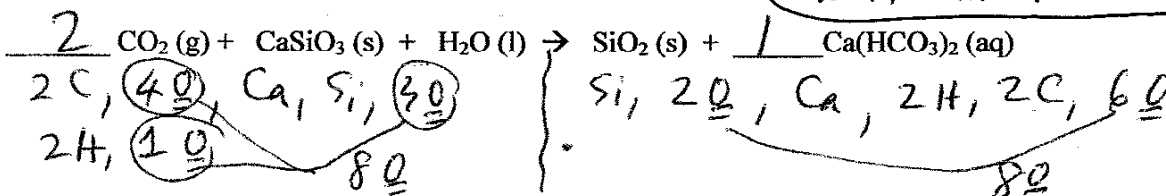
(circle one letter) (circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

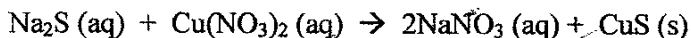
$$\text{molarity (M)} = \frac{\# \text{ moles of solute}}{\# \text{ Liters of solution}} \quad \text{or} \quad \frac{\# \text{ moles solute}}{1000 \text{ ml solution}}$$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank) Ok if multiple of blank



4. For the following balanced chemical reaction, if you start the reaction with 69.3 grams of Na_2S how many grams of NaNO_3 would you get? (FW Na_2S = 78.0 g/mol; FW NaNO_3 = 85.0 g/mol) (6 pts, show work)



$$69.3 \text{ g Na}_2\text{S} \times \frac{1 \text{ mol Na}_2\text{S}}{78.0 \text{ g Na}_2\text{S}} \times \frac{2 \text{ mol NaNO}_3}{1 \text{ mol Na}_2\text{S}} \times \frac{85.0 \text{ g NaNO}_3}{1 \text{ mol NaNO}_3} = 151 \text{ g NaNO}_3$$

(1 pt) (1 pt) (1 pt) (2 pt) (math 1 pt)

Extra Credit (2 pts) If you have 35.4 mL of a 4.5 M solution of NaCl, how many grams of NaCl (given the formula weight shown: FW NaCl = 58.5 g/mol) do you have in the solution? (show work) 1/2 pt

$$35.4 \text{ mL NaCl soln.} \times \frac{4.5 \text{ mol NaCl}}{1000 \text{ mL NaCl soln.}} \times \frac{58.5 \text{ g NaCl}}{1 \text{ mol NaCl}} = 9.3 \text{ g NaCl}$$

(1/2 pt) (1/2 pt)

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Please show all work for full credit.

1. To calculate mass percent of ^{hydrogen}oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

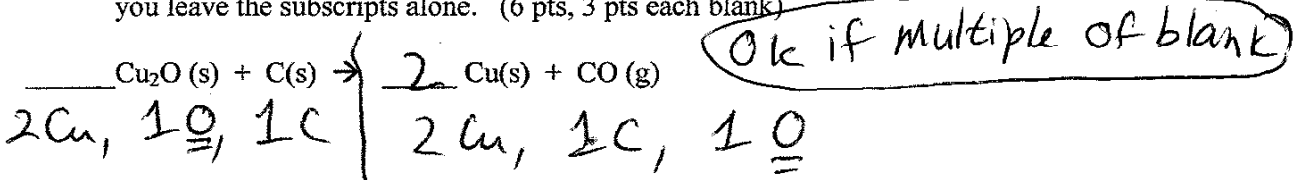
mass % = (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)
 hydrogen _____ x 100
 (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

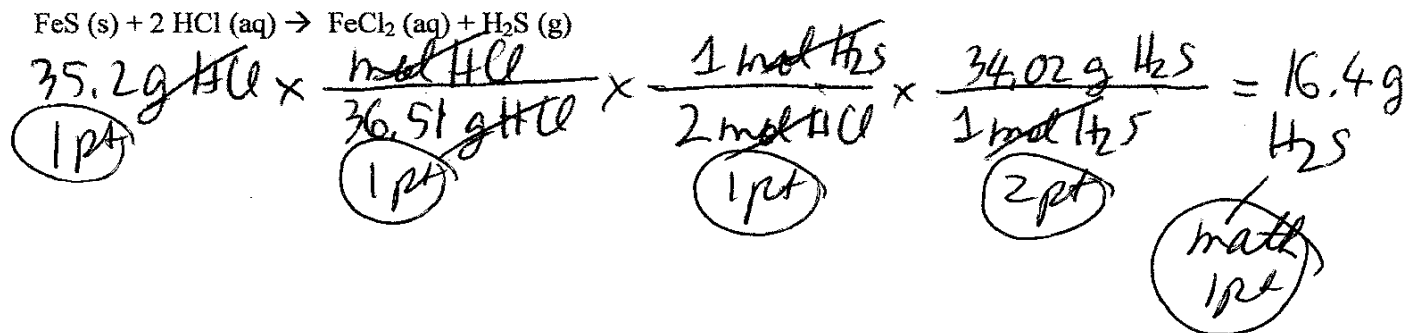
molarity (M) = $\frac{\# \text{ moles of solute}}{\# \text{ Liter of solution}}$ or $\frac{\# \text{ moles solute}}{1000 \text{ ml solution}}$

Please fill in the blank to complete the definition.

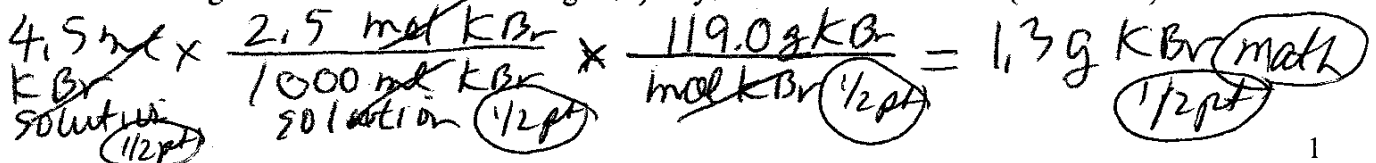
3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)



4. For the following balanced chemical reaction, if you start the reaction with 35.2 grams of HCl, how many grams of H₂S would you get? (FW HCl = 36.51 g/mol, FW H₂S = 34.02 g/mol (6 pts, show work)



Extra Credit (2 pts) If you have 4.5 mL of a 2.5 M solution of KBr, how many grams of KBr (given the formula weight shown: FW KBr = 119.0 g/mol) do you have in the solution? (show work)



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Please show all work for full credit.

1. To calculate mass percent of oxygen in NO₂, the formula is (4 pts, 2 pts top and 2 pts bottom)

$$\text{mass \% oxygen} = \frac{\text{(a) } 16.0 \text{ g } \text{(b) } 2 \times 16.0 \text{ g } \text{(c) } 14.0 \text{ g } \text{(d) } [14.0 + (2 \times 16.0)] \text{ g}}{\text{(a) } 16.0 \text{ g } \text{(b) } 2 \times 16.0 \text{ g } \text{(c) } 14.0 \text{ g } \text{(d) } [14.0 + (2 \times 16.0)] \text{ g}} \times 100$$

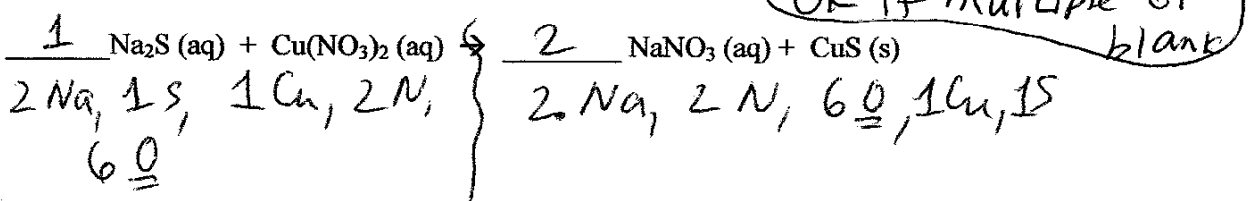
(circle one letter) (circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

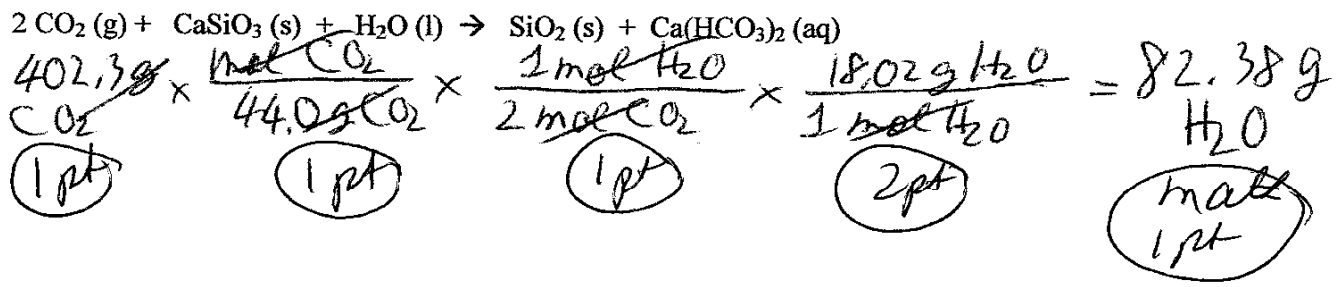
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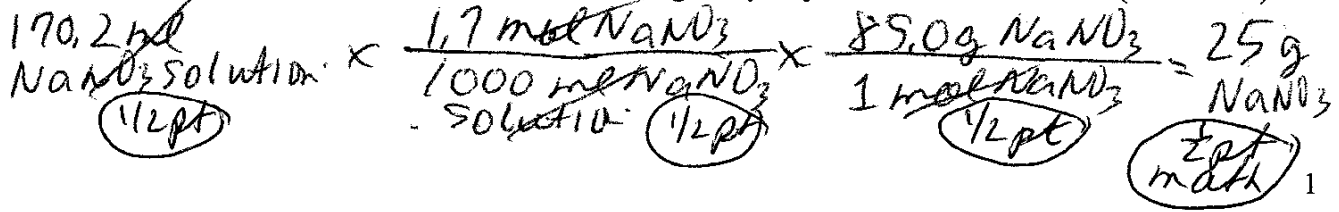
3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)



4. For the following balanced chemical reaction, if you start the reaction with 402.3 grams of CO₂, how many grams of H₂O (l) will you use up? (FW CO₂ = 44.0 g/mol, FW H₂O = 18.02) (6 pts, show work)



Extra Credit (2 pts) If you have 170.2 mL of a 1.7 M solution of NaNO₃, how many grams of NaNO₃ (given the formula weight shown: FW NaNO₃ = 85.0 g/mol) do you have in the solution? (show work)



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Please show all work for full credit.

1. To calculate mass percent of nitrogen in NO₂, the formula is (4 pts, 2 pts top and 2 pts bottom)

$$\text{mass \% nitrogen} = \frac{\text{(a) 16.0 g (b) } 2 \times 16.0 \text{ g (c) } 14.0 \text{ g (d) } [14.0 + (2 \times 16.0)] \text{ g}}{\text{(a) 16.0 g (b) } 2 \times 16.0 \text{ g (c) } 14.0 \text{ g (d) } [14.0 + (2 \times 16.0)] \text{ g}} \times 100$$

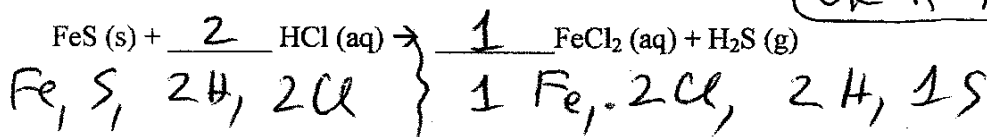
(circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

$$\text{molarity (M)} = \frac{\# \text{ moles of solute}}{\# \text{ Liter of solution}} \quad \text{or} \quad \frac{\# \text{ moles solute}}{1000 \text{ ml solution}}$$

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3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)



OK if multiple of blank

4. For the following balanced chemical reaction, if the reaction gives 16.5 grams of Cu(s), how many grams of CO (g) will you form? (FW Cu = 63.55 g/mol, FW CO = 28.0 g/mol) (6 pts, show work)

$$16.5 \text{ g Cu} \times \frac{1 \text{ mol Cu}}{63.55 \text{ g Cu}} \times \frac{1 \text{ mol CO}}{2 \text{ mol Cu}} \times \frac{28.0 \text{ g CO}}{1 \text{ mol CO}} = 3.63 \text{ g CO}$$

(1 pt) (1 pt) (1 pt) (2 pt) (math 1 pt)

Extra Credit (2 pts) If you have 25.2 mL of a 3.2 M solution of NH₄F, how many grams of NH₄F (given the formula weight shown: FW NH₄F = 37.04 g/mol) do you have in the solution? (show work)

$$25.2 \text{ mL NH}_4\text{F solution} \times \frac{3.2 \text{ mol NH}_4\text{F}}{1000 \text{ mL NH}_4\text{F solution}} \times \frac{37.04 \text{ g NH}_4\text{F}}{1 \text{ mol NH}_4\text{F}} = 2.99 \text{ g NH}_4\text{F}$$

(1/2 pt) (1/2 pt) (1/2 pt) (2 pt math)

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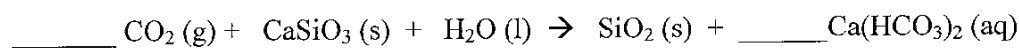
(circle one letter)

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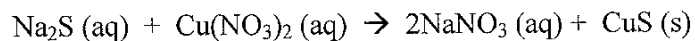
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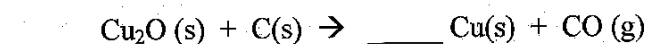
hydrogen

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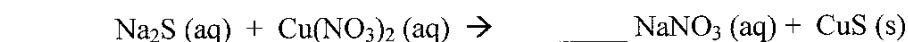
$$\text{mass \% oxygen} = \frac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}} \times 100$$

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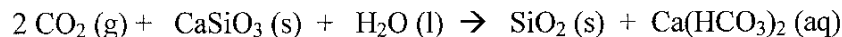
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1. To calculate mass percent of nitrogen in NO_2 , the formula is (4 pts, 2 pts top and 2 pts bottom)

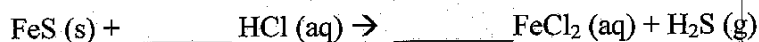
$$\text{mass \% nitrogen} = \frac{\text{(a) 16.0 g (b) } 2 \times 16.0 \text{ g (c) 14.0 g (d) } [14.0 + (2 \times 16.0)] \text{ g (circle one letter)}}{\text{(a) 16.0 g (b) } 2 \times 16.0 \text{ g (c) 14.0 g (d) } [14.0 + (2 \times 16.0)] \text{ g (circle one letter)}} \times 100$$

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