

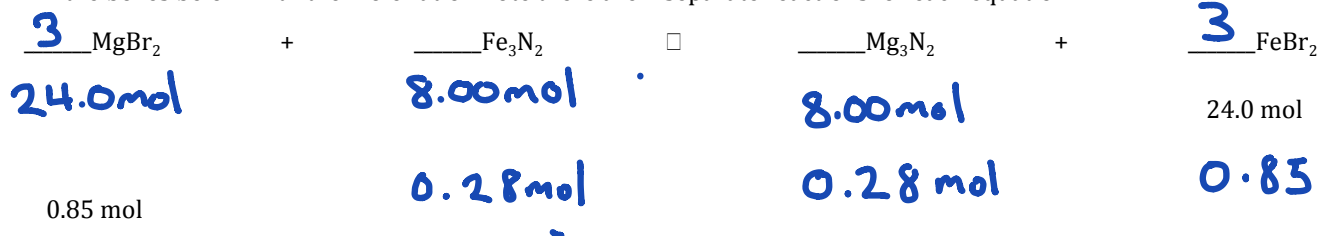
Mole Ratio

Name: _____

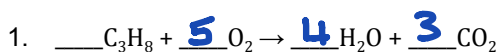
Date: _____

Balance the following reaction.

Fill in the boxes below with the mole ratio. Note there are 2 separate reactions for each equation.

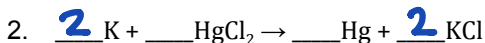


Balance the following and solve the problem. Show all work in dimensional analysis form.



How many moles of water will be produced if 1.2 mol of oxygen reacts with excess C_3H_8 ?

$$1.2 \text{ mol O}_2 \times \frac{4 \text{ mol H}_2\text{O}}{5 \text{ mol O}_2} = 0.96 \text{ mol H}_2\text{O}$$



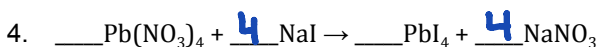
How many moles of potassium are needed to react with .633 moles of HgCl_2 ?

$$0.633 \text{ mol HgCl}_2 \times \frac{2 \text{ mol K}}{1 \text{ mol HgCl}_2} = 1.27 \text{ mol K}$$



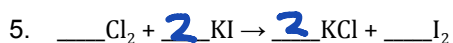
How many moles of hafnium nitride are produced when 2.00 moles of nitrogen reacts with excess hafnium?

$$2.00 \text{ mol N}_2 \times \frac{1 \text{ mol Hf}_3\text{N}_4}{2 \text{ mol N}_2} = 1.00 \text{ mol Hf}_3\text{N}_4$$



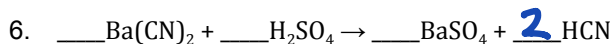
How many moles of PbI_4 are produced when 11.7 moles of sodium nitrate are produced?

$$11.7 \text{ NaNO}_3 \times \frac{1 \text{ mol PbI}_4}{4 \text{ NaNO}_3} = 2.93 \text{ mol PbI}_4$$



How many moles of chlorine are need to produce .4789 moles of iodine?

$$0.4789 \text{ mol I}_2 \times \frac{1 \text{ mol Cl}_2}{1 \text{ mol I}_2} = 0.4789 \text{ mol Cl}_2$$



How many moles of barium cyanide are need to produce 12.0 moles of barium sulfate?

$$12.0 \text{ mol BaSO}_4 \times \frac{1 \text{ mol Ba(CN)}_2}{1 \text{ mol BaSO}_4} = 12.0 \text{ mol Ba(CN)}_2$$

7. Aluminum chloride reacts with potassium metal. If 3.25 mol potassium metal reacted, how many moles of each product were formed?



$$3.25 \text{ mol K} \times \frac{3 \text{ mol KCl}}{3 \text{ mol K}} = 3.25 \text{ mol KCl} \quad \left| \quad 3.25 \text{ mol K} \times \frac{1 \text{ mol Al}}{3 \text{ mol K}} = 1.08 \text{ mol Al}$$

8. Sodium metal reacts with oxygen gas. 0.600 mol of oxygen gas was used up. How many moles of sodium metal reacted? How many moles of the product were formed?



$$0.600 \text{ mol O}_2 \times \frac{2 \text{ mol Na}}{1 \text{ mol O}_2} = 1.20 \text{ mol Na} \quad \left| \quad 0.600 \text{ mol O}_2 \times \frac{1 \text{ mol Na}_2\text{O}}{1 \text{ mol O}_2} = 0.600 \text{ mol Na}_2\text{O}$$

9. Nitrogen gas and hydrogen gas react together. If 9.43 mol of the product was formed, how many moles of nitrogen gas and hydrogen gas were used up?



$$9.43 \text{ mol NH}_3 \times \frac{1 \text{ mol N}_2}{2 \text{ mol NH}_3} = 4.72 \text{ mol N}_2 \quad \left| \quad 9.43 \text{ mol NH}_3 \times \frac{3 \text{ mol H}_2}{2 \text{ mol NH}_3} = 14.1 \text{ mol H}_2$$

10. 7.11 mol of H₂SO₄ reacts with sodium hydroxide. How many moles of the base are necessary for this reaction?



$$7.11 \text{ mol H}_2\text{SO}_4 \times \frac{2 \text{ mol NaOH}}{1 \text{ mol H}_2\text{SO}_4} = 14.2 \text{ mol NaOH}$$