

Stoichiometry

from the Greek word, "stoiken" - meaning element

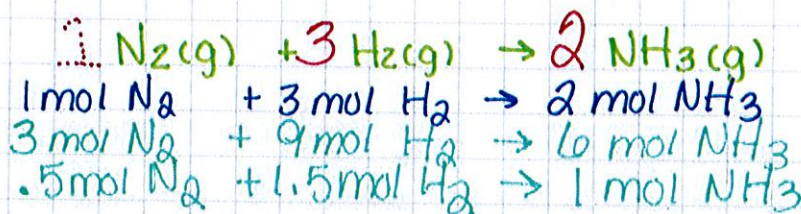
definition - the relationship between the relative amounts of substances (reactants & products) taking part in a reaction, typically a ratio of whole integers.



mole ratio

comes from the balanced equation

Balance the equation:



mole ratio

$$\left(\frac{\text{mol unknown}}{\text{mol given}} \right)$$

→ used to convert b/w one substance & another

Ex)



(1) How many moles of iron (III) sulfide are produced from the reaction of 6.00 mol iron with excess sulfur?
GIVEN

$$\frac{6.00 \text{ mol Fe}}{16 \text{ mol Fe}} \times \frac{8 \text{ mol Fe}_2\text{S}_3}{8 \text{ mol Fe}} = ?$$

= 3.00 mol Fe₂S₃

(2) How many moles of iron (III) sulfide are produced from the reaction of .565 mol sulfur with excess iron?
GIVEN

$$\frac{.565 \text{ mol S}_8}{3 \text{ mol S}_8} \times \frac{8 \text{ mol Fe}_2\text{S}_3}{8 \text{ mol S}_8} = ?$$

= 1.51 mol Fe₂S₃