

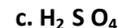
Oxidation & Redox

1. Determine the charge for each ion in the following:

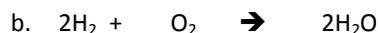


	Rules for assigning Oxidation Numbers
1	Neutral atoms & diatomic molecules = 0
2	More electronegative element # = ion charge
3	Fluorine always -1
4	Oxygen is -2 unless in peroxide then -1 or with Fluorine than +2
5	Hydrogen +1 unless combined with a metal then -1
6	Sum of # = 0 when neutral or charge of polyatomic ion

2. Determine the oxidation # for each atom in the compounds below:



3. Redox Reactions: **L E O** the lion goes **G E R**



Nuclear & Half-Life

1. The Atom:

2. Isotopes :

- **SAME** _____ (same # _____) but **DIFFERENT** # of _____
- Most are stable, some are unstable.
- Unstable isotopes will _____ to become _____.

3. Radioactive Decay:

4. Nuclear Symbol

5. Radioactive Decay will emit :

	Symbol	Composition	Shield
Alpha Particle	${}^4_2\text{He}$ or α	Helium	Paper
Beta Particle	${}^0_{-1}\text{e}^-$ or β	Electron	Heavy Clothing, glass, light metals, plastic
Gamma Ray	γ	Photons (electromagnetic spectrum)	Lead or concrete

6. **Half Life ($t_{1/2}$):** time for $\frac{1}{2}$ the atoms of radioactive unstable atom(nuclide) to decay.

- the sample's mass will half (50 grams becomes 25 grams)
- substances can have multiple $\frac{1}{2}$ life's : *might need to determine how many half-life the substance will have to solve the problem*

Problem # 1: How much of a 100 g sample of ^{198}Au is left over 8.10 days if its half-life is 2.70 days.

1 half life = _____ Time Frame = _____ Therefore _____ half lives will occur

Start with 100 g sample and half it _____ times:

Problem #2: A 50.0 g sample of ^{16}N decays to 12.5g in 14.4 seconds. What is the half-life?

Start amount: _____ End amount _____

- *You need to determine how many times _____ is halved until it reaches _____.*
- *_____ is how long 50 grams becomes 12.5 grams, so once you determine how many half-lives divide time by that number.*

Problem #3: The half life of ^{42}K is 12.4 hours. How much of a 750 g sample is left over after 62.0 hours?

Problem #4: What is the half-life of ^{99}Tc if a 500. g sample decays to 62.5g in 639,000 years?

Problem #5: There are 5.0 g of ^{131}I left after 40.35 days. How many grams were in the original sample if its half-life is 8.07 days?