

Atoms, Ions, and Isotopes Worksheet

Differentiate between atoms, ions, and isotopes.

	Atoms	Ions	Isotopes
Definition			
Is it Charged?			
Atomic Number			
Mass Number			
How are they formed?			
Stability			
Example			

Atoms, Ions, and Isotopes Worksheet

Answers

	Atoms	Ions	Isotopes
Definition	The smallest neutral particle that makes up the chemical properties of the element	Particles that possess an electric charge due to losing or gaining one or more electrons	Different forms of an element with the same protons but different neutrons
Is it Charged?	No	Yes	No
Atomic Number	The number of protons and electrons is the same	The number of protons and electrons is different	The number of protons and electrons is the same
Mass Number	The number of protons and neutrons is the same	The number of protons and neutrons is the same	The number of protons and neutrons is different
How are they formed?	Atoms are believed to have formed in large quantities during the Big Bang as well as supernovas	Made regularly during chemical equations	While isotopes are made during supernovas, they are also formed during radioactive nuclear equations
Stability	If the nucleus is balanced and lacks excess energy, it is considered stable	Stability depends on different factors like ionic radius, number of valence electrons, etc	Stability depends on the ratio of protons and neutrons and is not emitting radiation
Example	O	O ²⁻	¹⁸ O