

Name: Key

Atoms and Atomic Structure

1. The atomic number is the number of protons in an atom.
2. protons are positively charged.
3. electrons are negatively charged.
4. neutrons have no charge.
5. electrons have virtually no mass.
6. protons and neutrons have approximately equal masses.

WORD BANK

protons
neutrons
electrons
atomic number
mass number

7. The mass number is the sum of the number of protons and neutrons

Therefore, to determine the number of neutrons in an atom, you should take the mass # and subtract the atomic #.

atomic number
mass number

8. In a neutral atom, the number of protons equals the number of electrons.
9. To determine what element you have, you need to determine the number of protons
10. In the symbol $^{101}_{44}\text{Ru}$, 101 represents the mass #, and 44 represents the atomic #.
11. In the symbol Mo-96, 96 represents the mass #.
12. Isotopes of the same element differ in the number of neutrons.

Fill in the blanks in questions 13-15 with the appropriate number.

13. Protons have a mass of 1 a.m.u.
14. Neutrons have a mass of 1 a.m.u.
15. Electrons have a mass of 1/1838 a.m.u.

16. In what way(s) do U-232, U-235, and U-238 differ from each other?

They all differ in the # of neutrons.

In what ways are they similar to each other?

they have the same # of protons.

17. How many . . .

Protons in ${}^{40}_{19}\text{K}$ 19

Electrons in Sr-91 38

Neutrons in ${}^{18}_8\text{O}$ 10

Protons in C-14 6

Electrons in ${}^{20}_{10}\text{Ne}$ 10

Neutrons in Fe-58 32 (58-26)

Refer to the Periodic Table to find answers to the following questions:

How many . . .

18. Protons in a Zinc atom 30

19. Electrons in a Bromine atom 35

20. Neutrons in an average Mg atom 12

21. Protons in a Copper atom 29

22. Neutrons in an Na-24 atom 13

23. Neutrons in a ${}^{40}_{19}\text{K}$ atom 21