

1 Atomic structure – Part 1 —Answers

Answers

Work through these after trying the questions yourself.

1.1 (a) +1, mass 1 \ (b) 0, mass 1 \ (c) -1, mass $\frac{1}{1836}$ (0).

1.2 (a) 17 protons \ (b) $35 - 17 = 18$ neutrons \ (c) 17 electrons.

1.3 Proton number = the number of protons in the nucleus; nucleon number = the total number of protons and neutrons.

1.4 12 protons; $24 - 12 = 12$ neutrons; $12 - 2 = 10$ electrons (lost 2 electrons).

1.5 Atoms of the same element (same number of protons) with different numbers of neutrons.

1.6 They have the same number and arrangement of electrons, and chemical properties depend on the (outer) electrons.

1.7 The relative atomic mass is the *weighted average* of the isotope masses. Chlorine is mostly ^{35}Cl with some ^{37}Cl , so the average lies between 35 and 37 —about 35.5 —and is not a whole number.