1.4.2.4: Practice Isotopes

Exercise 1.4.2.4.1

For each isotope shown, give the number of protons, neutrons, and electrons. These isotopes are neutral (charge = 0).

a) $^{11}_{5}B$

b) $^{41}_{19}K$

c) $^{70}_{32}Ge$

Answer a

5 protons, 6 neutrons, 5 electrons

Answer b

19 protons, 22 neutrons, 19 electrons

Answer c

32 protons, 38 neutrons, 32 electrons

Exercise 1.4.2.4.1

For each isotope shown, give the number of protons, neutrons, and electrons.

d) $^{44}_{20}Ca^{2+}$

e) $^{41}_{19}K^{1+}$

f) $^{18}_{8}O^{2-}$

Answer d

20 protons, 24 neutrons, 18 electrons

Answer e

19 protons, 22 neutrons, 18 electrons

Answer f

8 protons, 10 neutrons, 10 electrons

Exercise 1.4.2.4.1

Given the number of protons, neutrons, and electrons, what would be the mass number and the charge number of each isotope? What would be the atomic number? The identity of the element?

g) 7 protons, 7 neutrons, 10 electrons

h) 15 protons, 16 neutrons, 15 electrons

i) 25 protons, 30 neutrons, 23 electrons

Answer g

Mass number is 14, charge is –3. Atomic number is 7, identity is nitrogen (N).

Answer h

Mass number is 31, charge is 0. Atomic number is 15, identity is phosphorus (p).

Answer i

Mass number is 55, charge is +2. Atomic number is 25, identity is manganese (Mn).
