

Name: Key
Blk: _____ Date: _____

CHEMISTRY 11 Atomic Number and Atomic Mass

The atomic number of an atom is the number of protons in its nucleus.

The atomic mass of an atom is the number of protons and neutrons in the nucleus of an atom

For a NEUTRAL atom, the number of protons equals the number of electrons.

The charge on a proton is +

The charge on a neutron is no

The charge on an electron is -

An ION is formed when you either add or remove **electrons** from/to a neutral atom.

If you **add** electrons the ion will have a negative charge.

If you **remove** electrons the ion will have a positive charge

Exercises 13-17:

13. How many protons are in the nucleus of each of the following?

(a) Be 4p⁺ (b) U 92p⁺ (c) Mn 25p⁺

14. How many electrons are there in a neutral atom of each of the following?

(a) C 6e⁻ (b) Fe 26e⁻ (c) Ar 18e⁻

15. How many electrons are there on each of the following?

(a) Na⁺ 10e⁻ (c) V³⁺ 20e⁻ (e) Cl⁻ 18e⁻ (g) Sb³⁻ 54e⁻ (i) H⁻ 2e⁻
(b) Mg²⁺ 10e⁻ (d) O²⁻ 10e⁻ (f) Al³⁺ 10e⁻ (h) Fe²⁺ 24e⁻ (j) As³⁻ 36e⁻

16. What is the ion produced when

(a) two electrons are added to S? S²⁻
(b) two electrons are removed from Ca? Ca²⁺
(c) an electron is added to Cl? Cl⁻
(d) three electrons are removed from Al? Al³⁺
(e) an electron is added to Cr³⁺? Cr²⁺
(f) two electrons are removed from Mn²⁺? Mn⁴⁺
(g) an electron is removed from V⁴⁺? V⁵⁺
(h) two electrons are added to Sb⁻? Sb³⁻
(i) an electron is removed from O²⁻? O¹⁻

17. What is the charge on the nucleus of each of the following?

(a) Mg +12 (b) Ne +10 (c) K⁺ +19 (d) S²⁻ +16

13. (a) $4p^+$ (b) $92p^+$ (c) $25p^+$
 14. (a) $6e^-$ (b) $26e^-$ (c) $18e^-$
 15. (a) 10 (c) 20 (e) 18 (g) 54 (i) 2
 (b) 10 (d) 10 (f) 10 (h) 24 (j) 36
 16. (a) S^{2-} (c) Cl^- (e) Cr^{2+} (g) V^{5+} (i) O^-
 (b) Ca^{2+} (d) Al^{3+} (f) Mn^{4+} (h) Sb^{3-}
 17. (a) +12 (b) +10 (c) +19 (d) +16

22.

	Symbol	Atomic Mass	Atomic Number	Number of protons	Number of neutrons	Number of electrons
(a)	Kr	84	36	36	48	36
(b)	Br	80	35	35	45	35
(c)	I ⁻	127	53	53	74	54
(d)	Co	59	27	27	32	27
(e)	Zn	66	30	30	36	30
(f)	Cd ²⁺	112	48	48	64	46
(g)	Sr ²⁺	88	38	38	50	36
(h)	X ²⁻ = Te ²⁻	127	52	52	75	54
(i)	X ³⁺ = Rh ³⁺	103	45	45	58	42
(j)	X ³⁻ = As ³⁻	75	33	33	42	36

23. a. 10.8 g B b. 69.8 g Ga c. 108.0 g Ag d. 72.7 g
 e. 65.4 g Zn f. 91.3 g g. 95.9 g