(2) Atomic #: # of protons (p^+)

$n^\circ + p^+$ = atomic mass (A)

#36/ ★ If they don't tell you, assume atom is neutral.

Sub - Atomic Particles and Energy

If an electrically neutral atom, # p^+ = # e^-

$n_\circ = A - Z$ (Atomic = atomic mass − atomic #)

Name_____ Date_____ Hour_____

#36 ★ Finish chart for next day.

1. Complete this chart. # p^+ use whole # here p^+ n° e^-

Atomic number	Mass number	Number of protons	Number of neutrons	Number of electrons	Symbol of element
Row 1: 7	14	7	7	7	N
Row 2: 9	19	9	10	10	F^{-1} ← ion, it is charged
Row 3: 19	39	19	20	19	K
Row 4: 27	59	27	32	27	Co
Row 5: 8	16	8	8	10	O^{-2}
Row 6: 4	9	4	5	4	Be

★ All Cr CWE all same # p^+

2. There are four naturally occuring isotopes of the element chromium. The relative abundance of each is: $^{50}Cr = 4.31\%$, $^{52}Cr = 83.76\%$, $^{53}Cr = 9.55\%$ $^{54}Cr = 2.38\%$. Calculate the average atomic mass of chromium. 24 protons

#37

26 n°, 24 p^+: 50 amu × .0431 = 2.155 amu

★ Weighted Avg. CWE different 2 → most likely

28 n°, 24 p^+: 52 amu × .8376 = 43.555 amu

29 n°, 24 p^+: 53 amu × .0955 = 5.062 amu

30 n°, 24 p^+: 54 amu × .0238 = 1.285 amu

52.057 amu → **52.06 amu**

★ not exactly same CWE rounded error

★ √ answer on periodic table

3. Write the electron configurations for these atoms.

Ch. 5

a. Cl

[Ne] $3s^2 3p^5$

$1s^2 2s^2 2p^6 3s^2 3p^5$

b. Al

[Ne] $3s^2 3p^1$

$1s^2 2s^2 2p^6 3s^2 3p^1$

#39 on computer

4. List, in order, the bands of the electromagnetic spectrum from lowest frequency to highest frequency.

Radio Waves : TV Waves : Micro-waves : Infrared Radiation : Visible : Ultra-violet Radiation : X-rays : Gamma Rays : Cosmic Rays

→ wave of energy

5. What is the energy of a photon of microwave radiation whose frequency is $3.20 \times 10^{11}\ s^{-1}$? Think Max Plank.

$J \cdot s \cdot \frac{1}{s} = J$ → energy unit

$E = h\nu$ (E = energy, h = Planck's constant, ν = frequency)

$h = 6.626 \times 10^{-34}$ J·s (Joules + seconds)

$E = (6.626 \times 10^{-34})(3.20 \times 10^{11})$

$E = 2.12 \times 10^{-22}$ J

Very small energy