Most Common Isotope Worksheet #1 Name: Key

Use the following terminology for this worksheet:

Element: Iron *Symbol: Fe* *Isotope symbol: Iron-56* *Nuclear symbol:* $^{56}_{26}\text{Fe}$

Part A. Write the most common isotope in hyphen notation for the following elements. The most common isotope can be found by rounding the atomic weight found on the periodic table of elements to the nearest whole number. The first one has been done for you.

1. Sodium: Na - 23
2. Aluminum: Al - 27
3. Arsenic: As - 75
4. Radon: Rn - 222
5. Carbon: C - 12
6. Cesium: Cs - 133

Part B. Write the most common isotope in nuclear symbol notation for the following elements.

7. Uranium: $^{238}_{92}U$
8. Plutonium: $^{244}_{94}Pu$
9. Fluorine: $^{19}_{9}F$
10. Zinc: $^{65}_{30}Zn$
11. Iodine: $^{127}_{53}I$
12. Hydrogen: $^{1}_{1}H$

Part C. Calculate the number of protons and neutrons in the following isotopes. Then determine is the isotopes is the most common isotope - Mark yes or no in the last column.

		protons:	neutrons:	yes / no
13.	H-3:	1	2	no
14.	C-14:	6	8	no
15.	Oxygen-16:	8	8	yes
16.	Osmium-190:	76	114	Yes
17.	Lead-270: (207)	82	125	Yes
18.	C-12:	6	6	yes
19.	$^{23}_{11}Na$:	11	12	Yes
20.	$^{4}_{2}He$:	2	2	yes
21.	$^{7}_{3}Li$:	3	4	yes
22.	$^{54}_{25}Mn$:	25	29	No
23.	$^{20}_{10}Ne$:	10	10	Yes
24.	$^{73}_{32}Ge$:	32	41	Yes
25.	$^{10}_{4}Be$:	4	6	No

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*Part D. List **all** of these choices that apply:*

A) proton B) neutron C) electron D) None of above

B	a. Has no charge	C	g. Has a negative charge
A B	b. Is found in the nucleus	C A	h. Were known to Rutherford
A B	c. Contributes to the mass number	D —	i. Were known to Dalton
A B	d. Similar in mass	A B	j. Has the highest mass
A	e. Determines the atomic number	C	k. Discovered in a cathode ray tube
B	f. Two isotopes can have different numbers of these		

Part E. Complete the following table: Assume all atoms are neutral.

isotope symbol	nuclear symbol	mass number	number of protons	number of neutrons	number of electrons	atomic number
carbon-12	$^{12}_{6}C$	12	6	6	6	6
argon-40	$^{40}_{18}Ar$	40	18	22	18	18
iodine-128	$^{128}_{53}I$	128	53	75	53	53
Nickel-60	$^{60}_{28}Ni$	60	28	32	28	28
sulfur-34	$^{34}_{16}S$	34	16	18	16	16
[illegible]	[illegible]	[illegible]	24*	[illegible]	[illegible]	[illegible]
potassium-40	$^{40}_{19}K$	40	19	21	19	19
aluminum-27	$^{27}_{13}Al$	27	13	14	13	13

* assume only one isotope exists

Challenge Round - does need to be completed.

1. What is the atomic number of iron-56? — 26
2. What is the mass number of boron-11? — 11
3. How many protons are found in an atom of strontium? — 38
4. How many protons are found in an atom of sulfur-32? — 16
5. How many electrons are found in a neutral atom of mercury-200? — 80
6. What element can be represented by 45 n^o, 34 p^+, 34 e^- — Selenium
7. What isotope symbol can be represented by, 7p^+, 7e^-, 7 n^o — N - 14
8. What nuclear symbol can be represented by 40p^+, 52 n^o — $^{92}_{40}Zr$
9. What is the nuclear symbol of a Vanadium atom with 25 neutrons? — $^{48}_{23}V$
10. Based on the periodic table, what is probably the most common isotope of Molybdenum? — Mo -96