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Chem	1/1/1	13 C	hniz	1
CHCIII	IVII	J, U	/UIZ	J

August 29, 2018

Name:	
	(Please Print)

Pay attention to significant figures in all calculations!

(1)																	VIIIA
1																	(18) 2
H	IIA											IIIA	IVA	VA	VIA	VIIA	He
3	(2) 4													(15) 7	(16) 8	(17) 9	4.0026
Li	Be											В	C	N	0	F	Ne
9410 11	9.0122											10.811	12.011	14.007	15.999	18.998	20.179 18
Na 1990	Mg	IIIB	IVB	VB	VIB	VIIB		. VIIIB .	(10)	IB	IIB	Al	Si	P	S 32.066	Cl	Ar 39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K	Ca	Sc 44 956	Ti	V 50 942	Cr	Mn	Fe	Co	Ni 58 690	Cu	Zn	Ga	Ge	As	Se	Br	Kr 83.800
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb .468	Sr 87.620	Y 88.906	Zr 91,224	Nb 92.906	Mo 95.940	Tc 98.907	Ru 101.07	Rh 102.91	Pd 106.42	Ag 107.87	Cd	In 114.82	Sn 118.71	Sb	Te	I 126.90	Xe 131.29
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
							190.20	192.22	195.09	196.97	200.59	204.38	207.20	208.98	208.98	209.99	222.02
87																	
Fr			Unq			Uns											
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 H 0880 3 3 410 1 1 Na 9990 8 37 Rb 468 55 S 2.91 87	1 H IIA (2) 3 4 Be 4410 9.0122 1 12 Mg 990 24.305 9 20 K Ca 098 40.078 87 38 Sr 468 87.620 55 56 Ba 137.33 87 88	1 IIA 0880 (2) 3 4 Li Be 410 9.0122 1 12 Mg 990 24.305 (3) 9 20 21 K Ca Sc 098 40.078 44.956 67 38 39 Rb Sr Y 468 87.620 88.906 65 56 57 Ra La 137.33 138.91 87 88 89 Ra Ac	1 IIA 0880 (2) 3 4 Be 410 9.0122 1 12 Mg 990 24.305 (3) 9 20 21 22 K Ca Sc Ti 098 40.078 44.956 47.880 67 38 39 40 Sr Y Zr 468 87.620 88.906 91.224 65 56 57 72 CS Ba La Hf 137.33 138.91 178.49 67 88 89 104 Ra Ac Unq	IIIA 0880 (2) 3 4 Be 410 9.0122 1 12 Mg 990 24.305 (3) (4) (5) 9 20 21 22 23 K Ca Sc Ti V 098 40.078 44.956 47.880 50.942 67 38 39 40 41 88 87.620 88.906 91.224 92.906 65 56 57 72 73 CS Ba La Hf Ta 180.95 67 88 89 104 105 Ra Ac Unq Unp	1 H IIA 0800 (2) 3 4 Li Be 410 9.0122 1 12 Mg IIIB IVB VB VIB 990 24.305 (3) (4) (5) (6) 9 20 21 22 23 24 K Ca Sc Ti V Cr 098 40.078 44.956 47.880 50.942 51.996 67 38 39 40 41 42 Rb Sr Y Zr Nb Mo 91.224 92.906 95.940 65 56 57 72 73 74 CS Ba La Hf Ta W 2.91 137.33 138.91 178.49 180.95 183.85 67 88 89 104 105 106 6r Ra Ac Unq Unp Unh	IIA	IIIA 0800 (2) 3 4 Be 410 9.0122 1 12 Mg 990 24.305 (3) (4) (5) (6) (7) (8) 990 24.305 (3) (4) (4) (5) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	IIIA	H IIA 0800 (2) 3	IIIA	H IIIA 080 080 020 08 08 08 08 090 08 08 090 08 08 08 08 08 08 08 08 08 08 08 08 08	H IIIA (13) 33	H IIA	H IIIA 080 (2) 3	H IIA 080 (2)	H IIA IIA IIA IIA IVA VA VIA VIIA VIIA

1. (6 points) **SHOW ALL WORK.** An atom of cesium (Cs) has a radius of 256 pm (*pico*meter). Imagine a string of individual Cs atoms laid edge to edge in a straight line like a row of golf balls. Determine the length (in inches) of a line of Cs atoms that could be made from a 75.0 fg (*femto*gram) sample of pure cesium. (*Note*: You must use the *mole concept* correctly in order to receive any credit for this problem.)

2. (3 points) Complete the following calculation (assume all values are measured quantities). Write the answer in proper *scientific notation*, rounded to the *correct number of significant figures*.

$$\frac{(6.07325 \times 10^{11}) (54.790 - 6.582)}{(0.87 + 3.531)^2 (7.1738 \times 10^{-4})} =$$

3.	(3 points) SHOW ALL WORK. The ratio of fluorine to antimony by mass in SbF3 is 0.332:1.00. Determine the formula of another fluoride of antimony in which the mass ratio of fluorine to antimony is 0.553:1.00. This data illustrates Dalton's Law of
4.	(6 points) SHOW ALL WORK. Aerogels are the most porous, lightest, solid materials known. A certain aerogel has a specific gravity of 0.00195. Determine the mass in pounds (lb) of an SUV size block of this aerogel that has a volume of 524 ft ³ .
5.	The element copper (Cu) has two naturally occurring isotopes: ⁶³ Cu and ⁶⁵ Cu. The isotope ⁶³ Cu has a mass of 62.9296 amu and a natural abundance of 69.17 %.
	(a) (2 points) One atom of 65 Cu ²⁺ contains protons, neutrons, and electrons.
	(b) (5 points) SHOW ALL WORK. Determine the mass of the ⁶⁵ Cu isotope in amu.