
 NUMERICAL ANSWERS TO ASSIGNED TUTORIAL PROBLEM SETS FOR CHEM205
 FROM KOTZ & TREICHEL'S CHEMISTRY & CHEMICAL REACTIVITY, 6th Edition

NOTE: the answers from Ch.1 have not all been verified – please report any errors (#96 has been fixed).

Ch.	Q#	Answer	Units	SFs	Comments
1	2				use periodic table
1	4				use periodic table
1	6a				cmpd, element
1	6b				element, cmpd
1	6c				element, cmpd
1	8a				chemical
1	8b				physical
1	8c				chemical
1	8d				physical
1	10a				chem: reactivity towards acid
1	10a				phys: colour, state, density
1	10b				chem: reactivity to give white compound
1	10b				phys: colours
1	14	0.865	g/cm ³	3	
1	16	5.00	g/mL	3	fool's gold
1	18	5.8x10 ³ K		2	
1	20a	-196	C	3	
1	20b	336	K	3	
1	20c	1177	C	4	4SF because addition/subtraction only operations...
1	26	1.5	dm ³	2	
1	30a				135, 2, 138, 0.3 C
1	30b				0, +3
1	30c				A = more accurate, B = more precise
1	34				chemical properties identified by: (c), (e), (f).
1	36	7.14	g/cm ³	3	zinc
1	38a	1.54x10 ⁻¹⁰	m	3	
1	38b	1.54	Angstroms (Å)	3SF	
1	42	170	g	2	167.5 g Pb, rounds to 170 with 2SF
1	58				Will see 2 layers of liquid, with solids floating or sinking in either/both liquid according to their density (sorry...I won't give it ALL away here!) refer to the text's CD...
1	70				
1	72				Hint: are the bonds INSIDE the I ₂ molecules changed during dissolving?
1	78a			3	leading zeroes (after decimal, before #s) are not significant
1	78b			2	trailing zeroes are not significant if no decimal present
1	78c			4	trailing zeroes are significant AFTER a decimal (including Sci. Notation)
1	78d			3	nothing tricky here
1	80	0.0286		3	remember: think about SF rules at each operation, but only round at end.
1	82				slope = 0.1637 g/kernel; mass = (0.1637)(# kernels) + 0.0958, so 1 kernel = 0.260 g mass of 50 kernels = 81.9 g; Number of kernels = 127
1	92	9.0x10 ¹	m	21	96 8.0x10 ⁴ kg/year 2 of NaF
1	94a	15	%	2	2SF due to subtraction step's answer...
1	94b	3630	kernels	3	3SF due to 3SF in kernel mass
1	96	8.0x10 ⁴	kg NaF/year	2	using dimensional analysis

Ch.	Q#	Answer	Units	SFs	Comments
1	102a				249 g H ₂ O (3SF) → 272 mL ice (3SF)
1	102b				not enough room in the can...
1	106a	8.7	g/cm ³	2	2SF due to subtraction step
1	106b				closest to Cd, but close to Co, Cu too...need more tests.