

Name _____

Period _____

2nd Semester Final Review - Solutions

1. Complete the table:

	Solute formula	Molar Mass of solute (g/mole)	Mass of Solute (g)	Moles of solute (mole)	Molarity of solution (M)	Volume of solution (L)
a	NaCl	58.5	58.5	1.00	1.00	1.00
b	NaOH	40.0	2.50	.0625	.0156	4.00
c	MgCl ₂	95.3	32.0	.336	.168	2.00
d	Al(OH) ₃	78.0	333	4.27	.500	8.54
e	KBr	119.0	595	5.00	2.00	2.50

2. Calculate the number of moles and the number of grams of solute in each solution:

		Moles of solute (mol)	Molar Mass of solute (g/mol)	Mass of solute (g)
a	2.00 liter of 0.250 M NaCl	.500	58.5	29.3
b	300.0 mL of 3.00 M KNO ₃	.900	101	90.9

3. How many moles of Sulfuric acid are in 2.00 liter of a 1.55 M H₂SO₄ solution?3.10 mol H₂SO₄

4. Describe how you would prepare 3.00 liters of a 6.00 M solution of potassium hydroxide.

1008g KOH and fill to a volume of 3.00L w/ dH₂O

5. If 9.5 ml of a 5.0 M stock solution of NaOH is diluted to a new volume of 15.0 ml, what is the concentration of the resulting solution?

3.1 M

6. How many mL of 4.0 M K₂Cr₂O₇ solution must be diluted in order to prepare 150 mL of a 1.0M solution?

37.5 ml

7. You need 250 mL of .025M NaCl, but the only supply of NaCl you have is 1.5M NaCl. How do you prepare the required solution?

V₁= 4.17 ml

8. Complete the table

	Solution concentration	Cation Formed	Cation Concentration	Anion formed	Anion Concentration	Total Ion Concentration
a.	3.0 M NaCl	Na ⁺	3.0	Cl ⁻	3.0	6.0
b.	1.0 M Al(OH) ₃	Al ³⁺	1.0	OH ⁻	3.0	4.0
c.	5.0 M NaOH	Na ⁺	5.0	OH ⁻	5.0	10.0
d.	0.22 M MgBr ₂	Mg ²⁺	.22	Br ⁻	.44	.66
e.	0.10 M Na ₂ S	Na ⁺	.20	S ²⁻	.10	.30