

Answer for Chem 2.1 worksheet 1

Question One

The answer may vary slightly due to different rounding of the molar mass

- a) $14.01 \times 2 = \underline{28.02 \text{ gmol}^{-1}}$
- b) $35.45 \times 2 = \underline{70.9 \text{ gmol}^{-1}}$
- c) $12.01 + 1.01 \times 4 = \underline{16.05 \text{ gmol}^{-1}}$
- d) $22.99 + 35.45 = \underline{58.44 \text{ gmol}^{-1}}$
- e) $24.31 + 35.45 \times 2 = \underline{95.21 \text{ gmol}^{-1}}$
- f) $40.08 + 32.06 + 16 \times 4 = \underline{136.14 \text{ gmol}^{-1}}$
- g) $39.10 + 16 + 1.01 = \underline{56.11 \text{ gmol}^{-1}}$
- h) $22.99 \times 2 + 12.01 + 16 \times 3 + 10 \times (1.01 \times 2 + 16) = \underline{286.19 \text{ gmol}^{-1}}$

Question Two

- a) $9 \text{ g} \div 18.02 \text{ gmol}^{-1} = \underline{0.499 \text{ mol}}$
- b) $24 \text{ g} \div 18.02 \text{ gmol}^{-1} = \underline{1.33 \text{ mol}}$
- c) $1.35 \text{ g} \div 70.9 \text{ gmol}^{-1} = \underline{0.0190 \text{ mol}}$
- d) $100 \text{ g} \div 180.18 \text{ gmol}^{-1} = \underline{0.555 \text{ mol}}$
- e) $85 \text{ g} \div 17.04 \text{ gmol}^{-1} = \underline{4.99 \text{ mol}}$
- f) $0.01 \text{ g} \div 132.16 \text{ gmol}^{-1} = \underline{7.57 \times 10^{-5} \text{ mol}}$
- g) $50 \text{ g} \div 32.05 \text{ gmol}^{-1} = \underline{1.56 \text{ mol}}$
- h) $50 \text{ g} \div 46.08 \text{ gmol}^{-1} = \underline{1.09 \text{ mol}}$

Question Three

- a) $0.1 \text{ mol} \times 18.02 \text{ gmol}^{-1} = 1.80 \text{ g}$
- b) $0.47 \text{ mol} \times 16.05 \text{ gmol}^{-1} = 7.54 \text{ g}$
- c) $5.8 \text{ mol} \times 56.11 \text{ gmol}^{-1} = 325 \text{ g}$
- d) $2.7 \text{ mol} \times 28.02 \text{ gmol}^{-1} = 75.7 \text{ g}$
- e) $1.32 \text{ mol} \times 46.08 \text{ gmol}^{-1} = 60.8 \text{ g}$
- f) $1.32 \text{ mol} \times 60.06 \text{ gmol}^{-1} = 79.3 \text{ g}$
- g) $72 \text{ mol} \times 42.09 \text{ gmol}^{-1} = 3,030 \text{ g}$
- h) $0.36 \text{ mol} \times 63.02 \text{ gmol}^{-1} = 22.7 \text{ g}$

Question Four

Substance		Ions	Moles of ions per mole of salt	Molar mass
Name	Formula			
Barium chloride	BaCl ₂	Ba ²⁺ , Cl ⁻	3	208.23 gmol ⁻¹
Calcium hydrogen carbonate	Ca(HCO ₃) ₂	Ca ²⁺ , HCO ₃ ⁻	3	162.12 gmol ⁻¹
Potassium dichromate	K ₂ Cr ₂ O ₇	K ⁺ , Cr ₂ O ₇ ²⁻	3	294.2 gmol ⁻¹
Copper sulfate	CuSO ₄	Cu ²⁺ , SO ₄ ²⁻	2	159.6 gmol ⁻¹