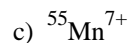
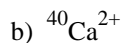
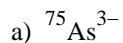


Name KEY

1. How many protons, neutrons, and electrons are contained in each of the following ions? [5 pts]



p 33

p 20

p 25

n 42

n 20

n 30

e 36

e 18

e 18

2. Name the following compounds. [5 pts]

Formula	Name
MgCl ₂	magnesium chloride
Rb ₂ CO ₃	rubidium carbonate
N ₂ O ₄	dinitrogen tetroxide
Cr(SO ₄) ₃	chromium(VI) sulfate
PF ₅	phosphorus pentafluoride

3. Write formulas for the following compounds: [4 pts]

Name	Formula
ammonium sulfide	(NH ₄) ₂ S
strontium hydroxide	Sr(OH) ₂
manganese(II) oxide	MnO
selenium hexafluoride	SeF ₆

4. Name the group or family. [4 pts]

- Calcium (Ca) is an alkaline earth metal.
- Chlorine (Cl) is a member of the halogen family.
- Krypton (Kr) is a noble gas.
- Rubidium (Rb) is an alkali metal.

5. **True or False.** [6 pts]

a) The formula $C_{17}H_{35}COOH$ is an empirical formula.

FALSE, the formula is $C_{18}H_{36}O_2$, which can be reduced to $C_9H_{18}O$.

b) Atomic mass is based on the ^{12}C standard.

TRUE

c) A cation is an ion with a net negative charge.

FALSE, a cation is an ion with a net positive charge.

d) PO_4^{2-} is the phosphate ion.

FALSE, PO_4^{3-} is the phosphate ion.

e) The mass of a neutron is several orders of magnitude greater than the mass of a proton.

FALSE, a neutron and proton has almost the same mass.

f) Avogadro's number is 6.022×10^{-23} particles/mole.

FALSE, Avogadro's number is 6.022×10^{23} particles/mole.

6. The imaginary element X has the following natural abundances and isotopic masses. What is the **average atomic mass** of X? [4 pts]

Isotope	Isotope mass	Abundance
$^{50}_{24}X$	49.9461 amu	5.000%
$^{52}_{24}X$	51.9405 amu	60.00%
$^{53}_{24}X$	52.9407 amu	35.00%

$$(49.9461)(0.05000) + (51.9405)(0.6000) + (52.9407)(0.3500) = \mathbf{52.19 \text{ amu}}$$

7. Aluminum has a density of 2.7 g/cm^3 . Convert this density to units of **lbs/ft³**. [1 lb = 453.6 g, 1 in = 2.54 cm] [4 pts]

$$\frac{2.7 \text{ g}}{1 \text{ cm}^3} \times \frac{1 \text{ lb}}{453.6 \text{ g}} \times \left(\frac{2.54 \text{ cm}}{1 \text{ in}}\right)^3 \times \left(\frac{12 \text{ in}}{1 \text{ ft}}\right)^3 = \mathbf{1.7 \times 10^2 \text{ lbs/ft}^3}$$