

Chemist: Key

Counting Atoms Worksheet # 1

1. Determine the subatomic particles in each of the following::

| | p ⁺ | e ⁻ | n ⁰ | Atomic # | Mass # |
|------------------|----------------|----------------|----------------|----------|--------|
| ²⁷ Al | 13 | 13 | 14 | 13 | 27 |
| Br | 35 | 35 | 45 | 35 | 80 |
| Fe | 26 | 26 | 30 | 26 | 56 |
| Ca ⁺² | 20 | 18 | 20 | 20 | 40 |
| O ⁻² | 8 | 10 | 8 | 8 | 16 |

2. Complete the following table:

| | p ⁺ | e ⁻ | n ⁰ | Atomic # | Mass # |
|------------------|----------------|----------------|----------------|----------|--------|
| K ⁺¹ | 19 | 18 | 21 | 19 | 40 |
| Mg | 12 | 12 | 12 | 12 | 24 |
| Sr ⁺² | 38 | 36 | 53 | 38 | 91 |
| Al | ~~~~~ | | | | |
| F ⁻¹ | 9 | 10 | 10 | 9 | 19 |

3. Carbon consists of 98.89% ¹²C (12.00000), and 1.110% ¹³C (13.00335). Calculate the atomic weight of carbon to four significant figures.

$$(.9889)(12.00000) + (.01110)(13.00335) = 11.869 + .144337185 = 12.01$$

4. Gallium consists of two natural isotopes, ⁶⁹Ga (68.9257) makes up 60.40% of the total. Calculate the % abundance and the mass of the other isotope.

$$(.6040)(68.9257) + (.3960)(x) = 69.723$$

$$41.6311228 + .3960x = 69.723$$

$$x = 70.93908384 = 70.94$$