

Chemistry 11
Atomic Theory I Check Point
 ✓ Atomic Structure

Name: *Keyy*
 Date:
 Block:

1. The table below contains information about two ions. Complete the missing components.

| Element Symbol | Element Name | Atomic Number | Mass Number | Number of protons | Number of neutrons | Number of electrons |
|------------------|--------------|---------------|-------------|-------------------|--------------------|---------------------|
| Ti ⁴⁺ | Titanium | 22 | 47.867 | 22 | 25.8 = 26 | 18 |
| S ²⁻ | Sulfur | 16 | 32.06 | 16 | 16 | 18 |

2. The table below contains information about two isotopes. Complete the missing components.

| Nuclear Symbol | Isotope Name | Atomic Number | Mass Number | Number of protons | Number of neutrons | Number of electrons |
|--------------------------------|--------------|---------------|-------------|-------------------|--------------------|---------------------|
| ¹⁴ ₆ C | Carbon-14 | 6 | 14 | 6 | 8 | 6 |
| ²⁷ ₁₂ Mg | Magnesium | 12 | 27 | 12 | 15 | 12 |

3. Use the following table to calculate the average atomic mass of silicon.

| Isotope | % Abundance | Mass (amu) |
|------------------|-------------|------------|
| ²⁸ Si | 92.21% | 27.977 |
| ²⁹ Si | 4.70% | 28.976 |
| ³⁰ Si | 3.09% | 30.11 |

$$\begin{aligned}
 \text{average} &= (0.9221)(27.977) + (0.0470)(28.976) \\
 &\quad + (0.0309)(30.11) \\
 &= 28.0898 \text{ amu} \\
 &= \boxed{28.09 \text{ amu}}
 \end{aligned}$$