3 • Atomic Structure

3.1 Quick Check - Electron Configuration

Check off each item if you can do the question. Write down a question to ask if you cannot do the question.

☐ Atomic Orbitals

- How many orbitals are on the fourth energy level?

- What is the maximum number of electrons that can occupy the 5d orbitals in an atom?

☐ Electron Configuration

For the following elements, write the long- and short-form electron configuration. Then write the total number electrons and the number of valence electrons.

- **Cl**
  
  Total e⁻: _____  Valence e⁻: _____

  Long form:

  Short form:

- **Co**
  
  Total e⁻: _____  Valence e⁻: _____

  Long form:

  Short form:

- **Sn**
  
  Total e⁻: _____  Valence e⁻: _____

  Long form:

  Short form:

- **Sn⁴⁺**
  
  Total e⁻: _____  Valence e⁻: _____

  Long form:

  Short form:

☐ Ions

- The valence electrons of an unknown element X are \( ns^2 \ np^3 \).
  
  What is the likely ion that X forms?