Intermolecular Forces and determining high/low melting + boiling points.

What type of Compound is it?

Ionic (metal + nonmetal)

* Greatest intermolecular forces + higher m.p. + b.p. compared to covalent compounds

* If you are comparing 2 ionic compounds, then ask if the ions of each compound are in a 1:1 ratio.

YES (Ex. NaCl is 1:1)

Then, compare energy levels. The closer the nuclei of each ion w/in the compound are, then the greater inter- + intramolecular forces there are = higher m.p + b.p.

NO (Ex. $CaCl_2$ is 1:2)

* More ions = greater charge = greater intermolecular force = higher m.p. + b.p.

Covalent (nonmetal + nonmetal)

* Hydrogen is a nonmetal

Polar (Has dipoles δ^+ + δ^-)

All polar molecules have dipole-dipole forces, but you need to ask yourself if the molecule can Hydrogen Bond. If yes, then it will have greater intermolecular force + greater m.p. + b.p.

Non Polar (No Dipoles)

Intermolecular forces are only London dispersion forces. The greater the molar mass then the greater the forces + greater m.p. + b.p.