# 12.8, 13.3, 13.4, 13.6, 13.8 Review

Phase diagrams

- The triple point of substance X is 886 mmHg and 146 ºC. The fusion curve has a positive slope. A sample of the substance is initially at 130 ºC and 900 mmHg. Which phase transition occurs when the temperature is increased to 155 ºC at constant pressure? What is this process called?
- Does the phase diagram of water have a fusion curve with a negative or positive slope?

Cubic unit cells

- Convert these figures in pm to cm

- 365 pm
- 250 pm

- Identify the element using the given information.

Mass of unit cell= $1.79209565 \times 10^{-22}$

Type of cubic unit cell= FCC

(Hint= the Molar Mass calculated will correlate to the identity of the element)

- Use the following data (r= 143 pm) and the above information to determine the density of the compound.
- How many atoms are in this cubic unit cell?
- Which cubic unit cell has a greater packing efficiency? One with a coordination number of 2 or 6?

Semi conductors

- What is a band gap? What are other names for it?
- What type of semi conductor is produced when doping silicon with phosphorous?
- What type of semi conductor is produced when doping silicon with Aluminium?

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