

Discuss the following with your group to come up with a consensus explanation.

1. What is the dominant intermolecular force present in H_2 ? Explain below.

- A) Dispersion B) Ion-dipole C) Hydrogen bonding D) Dipole-dipole
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2. What is the dominant intermolecular force present in CHF_3 ? Explain below.

- A) Dispersion B) Ion-dipole C) Hydrogen bonding D) Dipole-dipole
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3. What is the dominant intermolecular force present in CH_3OH ? Explain below.

- A) Dispersion B) Ion-dipole C) Hydrogen bonding D) Dipole-dipole
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4. What type of intermolecular force causes the dissolution of NaCl in water? Explain below.

- A) Dispersion B) Ion-dipole C) Hydrogen bonding D) Dipole-dipole
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5. Choose the molecule or compound that exhibits dispersion forces as its strongest intermolecular force. Explain below.

- A) CO B) HF C) Cl_2 D) NaCl
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6. Place the following compounds in order of decreasing strength of intermolecular forces: HF, O_2 , CO_2

_____ < _____ < _____

Explain your ranking: _____

7. Choose the substance with the highest vapor pressure at a given temperature.

- A) RbCl B) CH_3SCH_3 C) BF_3 D) SbH_3 E) SiS_2

Explain your choice: _____

8. Choose the substance with the highest boiling point.

A) CH₄B) I₂

C) KI

D) HF

E) CS₂

Explain: _____

9. Which of the following substances would you predict to have the highest ΔH_{vap} ?

Explain: _____

10. Place the following substances in order of decreasing boiling point. N₂ O₂ H₂

_____ > _____ > _____

Explain:

Refer to the phase diagram to the right for the following questions:

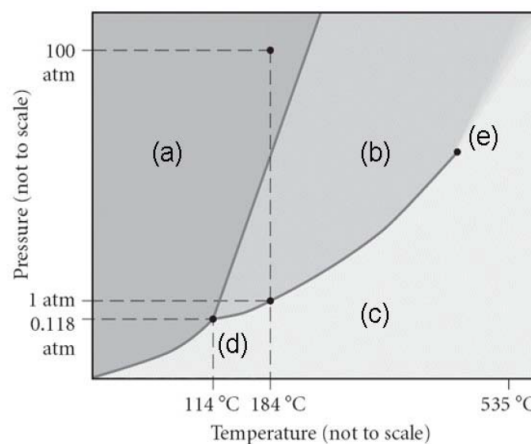
1. Which phase is represented by the letters (a), (b), and (c)?

(a) _____ (b) _____ (c) _____

2. The boundary between (a) and (b) represents the...

3. The point represented by (d) corresponds to the...

4. The point represented by (e) corresponds to the...



5. Describe the phase changes associated with moving from point (a) to (b): _____

6. Describe the phase changes associated with moving from point (c) to (b): _____

7. How much heat is released when 105g of steam at 100.0 °C is cooled to ice at -15.0 °C? The enthalpy of vaporization of water is 40.67 kJ/mol, the enthalpy of fusion for water is 6.01 kJ/mol, the specific heat capacity of liquid water is 4.18 J/g°C and the specific heat capacity of ice is 2.02 J/g°C.

($q_{\text{heating}} = m \times C \times \Delta T$, $q_{\text{phase change}} = \Delta H_{\text{vap}} \times n$)