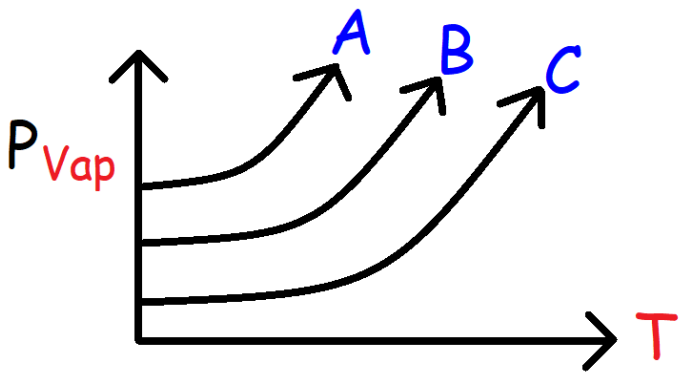
Vapor Pressure Worksheet

5 Practice Problems

Organic Chemistry Tutor

1. Consider the graph below. (a) Which substance is most volatile? (b) Which substance has the greatest intermolecular forces among its molecules? (c) Which substance has the highest boiling point? (d) If the three substances are CH_3OH, CH_3CH_2OH, and $CH_3CH_2CH_2OH$ – which molecule corresponds to substance A?



2. A substance has a vapor pressure of 50.0 torr at 20° C. What is the vapor pressure of the substance at 45° C? (The enthalpy of vaporization is 17.0 kJ/mol)

3. The top of Mountain XYZ has an atmospheric pressure of 600 torr. What is the boiling point of water on this mountain? (The enthalpy of vaporization is 40.7 kJ/mol)

4. The vapor pressures of substance XYZ is 25 torr and 70 torr at 280 K and 320 K respectively. What is the enthalpy of vaporization for this substance in kJ/mol?

5. Substance ABC has a vapor pressure of 315 torr at 30^{o} C and a vapor pressure of 960 torr at 90^{o} C. What is the normal boiling point of substance ABC?

Answers:

1a. Substance A
1b. Substance C
1c. Substance C
1d. CH_3OH

2. 86.5 torr
3. 93.4^0 C
4. 19.2 kJ/mol
5. 75.5^o C