**Colligative properties test 1**

Name:

**State** what happens to the **vapour pressure** of a solution if we make it more concentrated (by adding more solute).

At 25oC, pure water has a vapour pressure of 3.2 kPa. **Calculate** the **vapour pressure** of a solution 10 moles benzoic acid in 60 moles water at 25oC?

**Calculate** the **boiling point elevation** when 8.5 g of borane (BH3) is dissolved in 500 g of water? *(Data: Atomic masses 🡪 B=10.8, H=1.0 , Kb for water is 0.512 °C/m)*

**Calculate** the **new freezing point** if a solution of water is made with 1.2 moles of sugar in 200 g water? *(Data: The freezing point of pure water is 0oC and the cryscopic constant is 1.86 oC/m)*

An aqueous solution of concentration 9.2 g/L of a certain substance exerts an osmotic pressure of 0.474 atm at 0°C. **Calculate** the **molecular mass of the solute**. *(Data: This question requires temperature in Kelvin)*

When dissolving 5 g of a certain solute in 100 g of water, the resulting solution boils at 100.5°C. **Calculate** the corresponding **molecular mass of the solute**? (*Data: Kb for water = 0.512 oC/m*)