1. Use the Cox chart to determine the boiling point at 2000 mm Hg of one of the following substances. Use the vapor-pressure data that are given below to establish the line on the Cox chart.

Ethyl Acetate		Ethyl Formate		Sulfur	
0°C	24.2 mm Hg	0°C	72.4 mm Hg	250°C	12 mmHg
160°C	8.349 atm	200°C	28.0 atm	444.6°C	760.0 mm Hg

2. Calculate the total pressure and the composition of the vapors in contact with a solution at 100°C containing 35% benzene (C_6H_6), 40% toluene ($C_6H_5CH_3$) and 25% orthoxylene ($C_6H_4(CH_3)_2$) by weight.

3. Myristic acid is to be distilled at a temperature of 200°C by use of superheated steam. It may be assumed that the relative saturation of the steam with acid vapors will be 80%.

   (a) Calculate the weight of steam required per pound of acid vaporized if the distillation is conducted at an atmospheric pressure of 740 mm Hg.

   (b) Calculate the weight of steam per pound of acid if a vacuum of 26 in. Hg is maintained in the apparatus.

4. The vapor pressure of ethyl ether is given in the International Critical Tables as 185 mm Hg at 0°C. The latent heat of vaporization is 92.5 cal per gram at 0°C. Calculate the vapor pressure at 20 and 35°C.

Benzene $p^* = 180.04$ kPa
Toluene $p^* = 74.168$ kPa
O-Xylene $p^* = 82.98$ kPa
at 100°C

Myristic Acid $C_{14}H_{28}O_2$
$p^*(200^\circ C) = 15.476$ mm. Hg