Homework no. 2

Compare resulting heating factor of a heat pump against different condensation temperature. Required heat output of condenser is 15 kW. Temperature of evaporation is constant -10 °C. Requested temperatures of condensation are 35 °C, 40 °C and 45 °C.

Heat pump cycle is considered as ideal, incorporating ideal compressor.

Consider saturated steam behind evaporator and saturated liquid behind condenser. Refrigerant is NH_3 or any other refrigerant (diagram is necessary).

Calculate:

- mass flow rate of refrigerant, electric input of ideal compressor, cooling output of evaporator and heating factor,

Draw all variants into a common refrigerant diagram,

Compare variants and draw a chart of heat factor dependency to condensation temperature and resulting compressor input.