Question#19457

A carnot refrigerator takes heat from water at 0 C and rejects heat to a room at 27C. If 50 kg of water at 0C is converted to ice at 0C, how much energy must be supplied to the refrigerator?

Answer:

For freezing water needed such energy:

$$Q = \lambda m, \ were: \lambda - enthalpy\ of\ fusion, for\ ice\ \lambda = 334\ kJ/kg$$
$$Q = 334 * 50 = 16700\ kJ$$