Heating and Cooling Curves Part 2

1. How much thermal energy, in kJ, is required to heat 10.0 g of ice from -10.0°C to 45.0°C?

Boiling Point = 100.0°C
Melting Point = 0.0°C

c_{solid} = 2.03 $\frac{J}{g \cdot K}$ ΔH_{fus} = 6.01 kJ/mol

c_{liquid} = 4.18 $\frac{J}{g \cdot K}$ ΔH_{vap} = 40.67 kJ/mol

c_{gas} = 1.84 $\frac{J}{g \cdot K}$

2. Methane has a boiling point of -161.6 °C and a melting point of -182 °C. What phase changes take place under the following conditions if the pressure is held at 760 mmHg?

a) heat is added as the temperature is held at -182 °C.

b) the temperature is lowered from -175 °C to 169 °C.