**Practice Heating and Cooling Curve Problems**

1. The following table shows the thermal properties of ethanol, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Thermal Properties of Ethanol**

|  |  |
| --- | --- |
| **Melting point** | **-114.0 oC** |
| **Boiling point** | **78.0 oC** |
| **Specific Heat Capacity as a solid** | **0.97 J/goC** |
| **Specific Heat Capacity as a liquid** | **2.46 J/goC** |
| **Specific Heat Capacity as a gas** | **1.42 J/g/oC** |
| **Heat of fusion** | **5.02 kJ/mol** |
| **Heat of vaporization** | **38.56 kJ/mol** |

If a 69.0 g sample of ethanol is from 92.0 oC to – 30.0 oC then how many kJ of heat energy must be released from the ethanol?

**Sketch!!!!!!! Just like math class!!!!!**

**2.** Use the information given below to find the total amount of energy required to heat

56.0 g of nitrogen from - 205.0 oC to – 156.6 oC.

|  |  |
| --- | --- |
| Boiling point of nitrogen | - 195.8 oC |
| Melting point of nitrogen | - 209.9 oC |
| Heat of vaporization of nitrogen | 5.58 kJ/mol |
| Heat of fusion of nitrogen | 0.71 kJ/mol |
| Specific heat capacity of liquid nitrogen | 2.04 J/goC |
| Specific heat capacity of nitrogen vapour | 1.04 J/goC |

**Sketch!!!!**