

ΔH and $q = ms\Delta T$ problems

1. The substance cyclohexane, C_6H_{12} , has the following physical properties:

melting point = $6.0\text{ }^\circ\text{C}$	$S_{(\text{solid})} = 1.2\text{ J/g}^\circ\text{C}$	$\Delta H_{\text{fusion}} = 2.4\text{ kJ/mol}$
boiling point = $81.0\text{ }^\circ\text{C}$	$S_{(\text{liquid})} = 2.8\text{ J/g}^\circ\text{C}$	$\Delta H_{\text{vap}} = 18.0\text{ kJ/mol}$
	$S_{(\text{gas})} = 0.9\text{ J/g}^\circ\text{C}$	

Calculate the heat change needed to do the following, and indicate whether the process is exothermic or endothermic:

- melt 100g of solid C_6H_{12} at its melting point.
- boil 100g of liquid C_6H_{12} at its boiling point.
- freeze 25g of liquid C_6H_{12} at its melting point.
- condense 50g of C_6H_{12} vapor at its boiling point.
- heat 10g of C_6H_{12} from 2°C to 5°C .
- heat 20g of C_6H_{12} from 20°C to 50°C .

