

Name _____

Date _____ Pg ____

Unit 3 Worksheet 4 – Quantitative Energy Problems

Part 2

Energy constants (H_2O)

334 J/g	Heat of fusion (melting or freezing) H_f
2260 J/g	Heat of vaporization (evaporating or condensing) H_v
2.1 J/g°C	Heat capacity (c) of solid water
4.18 J/g°C	Heat capacity (c) of liquid water

For each of the problems sketch a warming or cooling curve to help you decide which equation(s) to use to solve the problem. Keep a reasonable number of sig figs in your answers.

- How much energy must be absorbed by a 150 g sample of ice at 0.0 °C that melts and then warms to 25.0°C?
- Suppose in the Icy Hot lab that the burner transfers 325 kJ of energy to 450 g of liquid water at 20.0°C. What mass of the water would be boiled away?
- A 12oz can of soft drink (assume $m = 340 \text{ g}$) at 25°C is placed in a freezer where the temperature is - 12 °C. How much energy must be removed from the soft drink for it to reach this temperature?