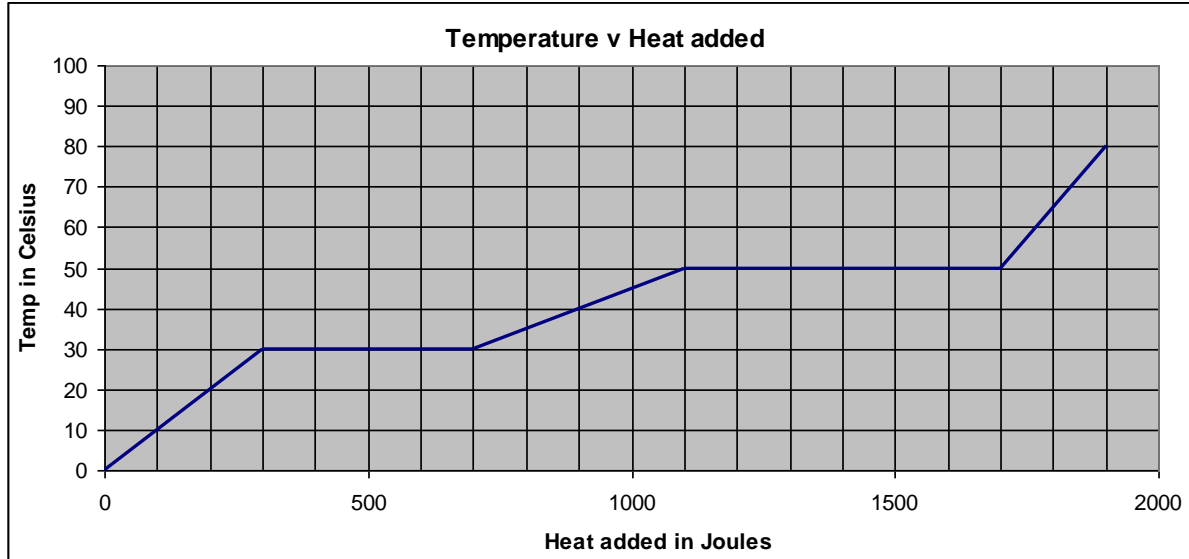


Name _____

Favorite Wilderness Experience _____

Show your work, and circle your answers and use sig figs to receive full credit.

When you have finished this, go to the website and check your answers. If you got a problem wrong, cross it off on the front, and do it correctly on the back.
This is a graph of temperature v. heat added for a 0.218 kg sample of unknown. It starts as a solid, and ends as a gas.



1. What is the **melting temperature** and the **boiling temperature** of this substance? Label the **solid, liquid** and **gaseous** phases.

(Melt = 30 °C, Boil = 50 °C, solid 0-300 J added, Liquid 700-1100 J added, Gas 1700-2000 J added.)

2. What is the **latent heat of vaporisation**? (Boiling)

(2750 J/kg)

3. What is the **specific heat** of the liquid phase?

(91.7 J/kg°C)

4. What heat do you need to heat 3.29 Kg of water at 21.0 °C to steam at 175 °C?

(For H₂O: C_{ice} = 2100 J/kg°C, l_f = 3.33 x 10⁵ J/Kg, C_{water} = 4186 J/Kg°C, l_v = 22.6 x 10⁵ J/Kg, C_{steam} = 2010 J/kg°C)

(9.02 x 10⁶ J)

5. 500. grams of a mystery liquid at 45.0 °C is mixed with 300. grams of water (C = 4186 J/Kg°C) initially at 22.0 °C. The final temperature of the mixture is 33.0 °C. What is the specific heat of the mystery liquid?

(Assuming no heat was lost to the surroundings)

(2.30 x 10³ J/kg°C)