**Quiz 10A**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. Name three properties of a liquid (3 points):

Answer will vary.

1. If the enthalpy of fusion of ice is 333 J/g (6 points)
	1. what is the enthalpy of solidification of ice? \_\_\_\_-333 J/g
	2. what is the enthalpy of fusion of ice in kcal/mol?

$$333\frac{J}{g H\_{2}O}×\frac{1 cal}{4.184 J}×\frac{1 kcal}{1000 cal}\frac{18.015 g H\_{2}O }{1 mol H\_{2}O}=1.433794216\frac{kcal}{mol}≈1.43\frac{kcal}{mol}$$

1. Calculate the total heat in kilojoules needed to convert 15.0 g of liquid water at 25 °C to steam at 100 °C. If cwater = 4.184 J/g °C and ∆H­vaporization = 2.26 kJ/g (10 points).
 100 °C 100 °C

 A B C

 25 °C

$$q\_{total}=q\_{A\rightarrow B}+q\_{B\rightarrow C}$$

$$q\_{total}=mc∆T+m∆H\_{vap}$$

$$q\_{total}=\left(15.0 g\right)\left(4.184\frac{J}{g ℃}\right)\left(100℃-25℃\right)×\frac{1 kJ}{1000 J}+\left(15.0 g\right)\left(2.26\frac{kJ}{g}\right)$$

$$q\_{total}=\left(15.0 g\right)\left(4.184\frac{J}{g ℃}\right)\left(75℃\right)×\frac{1 kJ}{1000 J}+\left(15.0 g\right)\left(2.26\frac{kJ}{g}\right)$$

$$q\_{total}=4.707 kJ+33.9 kJ$$

$$q\_{total}=38.607 kJ≈38.6 kJ$$

1. What are you doing in this weeks’ experiment (1 point)?

Preparing solutions