

Name: \_\_\_\_\_

 20 Pts.

**Calorimetry Data Sheet**  
**Show ALLL work with proper units and sig figs!!!**

Metal _____	Water
Mass of metal:	Mass of water in calorimeter:
Initial T of metal (boiling water bath):	Initial T (T of water in calorimeter):
Final T of metal (highest T in calorimeter):	Final T of water (highest T in calorimeter):
$\Delta T$ :	$\Delta T$ :
Calculate heat absorbed by water (= heat released by metal):	
Calculate the Specific Heat of the Metal:	
Theoretical Value of Specific Heat of Metal:	Percent Error:

Metal _____	Water
Mass of metal:	Mass of water in calorimeter:
Initial T of metal:	Initial T:
Final T of metal:	Final T of water:
$\Delta T$ :	$\Delta T$ :
Calculate heat absorbed by water (= heat released by metal):	
Calculate the Specific Heat of the Metal:	
Theoretical Value of Specific Heat of Metal:	Percent Error:

Metal _____	Water
Mass of metal:	Mass of water in calorimeter:
Initial T of metal:	Initial T:
Final T of metal:	Final T of water:
$\Delta T$ :	$\Delta T$ :
Calculate heat absorbed by water (= heat released by metal):	
Calculate the Specific Heat of the Metal:	
Theoretical Value of Specific Heat of Metal:	Percent Error:

### Conclusion Questions:

- The specific heat of gold is  $0.128 \text{ J/g}^\circ\text{C}$ . The specific heat of krypton is  $0.247 \text{ J/g}^\circ\text{C}$ .
  - If 20.0 grams of each substance cools from are from  $50^\circ\text{C}$  to  $25^\circ\text{C}$  which loses more heat? Explain.
  - Which has more kinetic energy at  $25^\circ\text{C}$ ? Explain.
  - If 10 grams of each substance absorbs 100 kJ of heat which will have the higher final temperature? Explain.
  - If 10 grams of each substance absorbs 100 kJ which will have more heat? Explain.
- Hydrogen gas releases 120. J/g when burned in oxygen. How many grams of hydrogen are needed to heat 20.0L of water from  $18^\circ\text{C}$  to it's boiling point,  $100^\circ\text{C}$ ?
- 30.00g of Au ( $C_p = 0.128 \text{ J/g}^\circ\text{C}$ ) and 30.00g of Pd ( $C_p = 0.245 \text{ J/g}^\circ\text{C}$ ) are placed in a dry test tube. The test tube and contents is heated in a boiling water bath to  $100.^\circ\text{C}$ . The mixture of gold and palladium metal is placed into 125g of water at  $21.5^\circ\text{C}$ . To what final temperature is the water heated by the metals?  
(Note: You should find that you are only working with one variable,  $T_2$ )