Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_

**PRACTICE: Specific Heat Calculations**

***Equations:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Q=** | **C=** | **m=** | **ΔT=** |

***Define and list the variables and its units****:*

Specific Heat:

Heat energy:

**\*\*\*Positive heat energy = Negative heat energy =**

Change in temperature:

***Identify the variables and find the answer in the following questions. SHOW YOUR WORK!!!!! (always use sig figs)***

1. The temperature change of 335 grams of water is 2.1 oC, how much heat did this sample absorb? (The specific heat for water = 4.18 J/g oC)

q =

c =

m =

Δt =

1. 1220. grams of water is heated using 309000 J what is the change in temperature? (Specific heat = 4.18 J/goC)

q =

c =

m =

Δt =

1. A 26.0 gram sample of metal that has been cooled from an initial temperature of 82.25 oC to a final temperature of 28.34 oC the heat energy released was 1225 J what is the specific heat capacity?

q =

c =

m =

Δt =

1. What is the specific heat of silicon if it takes 192 J to raise the temperature of 45.0 grams of silicon by 6.00 oC ?

q =

c =

m =

Δt =

1. Assume that Coca-Cola has the same specific heat capacity as water (4.18 J/g oC). If 3220. J of energy released when the temperature is decreased from 25.0oC to 3.00oC, what is the mass of the Coca-Cola?

q =

c =

m =

Δt =

1. Titanium metal is used as a structural material in many high-tech applications what is the specific heat capacity in J/g°C if it takes 89.7 J to raise the temperature of a 33.0 g block by 5.20 °C.

q =

c =

m =

Δt =

1. Copper has a specific heat of 0.385 J/g°C, a piece of copper absorbs 5550 J of energy undergoes a temperature change of 100.°C to 200.°C what is the mass of the copper?

q =

c =

m =

Δt =

1. A 40. gram sample of water absorbs 500. J of energy how much did the water temperature change? The specific heat of water is 4.18 J/g°C.

q =

c =

m =

Δt =

1. If an unknown water loses 9750 J of heat going from 65.5 °C to 45.5 °C, calculate the mass of the water. Assume the specific heat of the water is 4.18 J/g°C

q =

c =

m =

Δt =

**\*\*\*CHALLENGE QUESTION!!!\*\*\***

1. What is the final temperature of a 225g sample of water if it takes 14,100 J of energy is put into a sample with an initial temperature of 25.0 °C. The specific heat of water is listed in #9 above.

q =

c =

m =

Δt =