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

**REVIEW STATION 3: Specific Heat Calculations**

***Equations:***

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

***Variables and units****:*

Specific Heat:

**Steps to Solve:**

1. Create variables list & determine unknown.

2. Select equation to solve for unknown.

3. Plug in known values and solve.

4. Be sure your answer has correct sig figs and units and that it makes sense!

Heat energy:

**Positive heat energy =**

**Negative heat energy =**

Change in temperature:

**EXAMPLE:** 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 =