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

Hour: \_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_

# Chemistry: *Heat Energy Problems*

*Solve each of the following problems. Show work and include units to earn full credit. You will need to use a reference source to find the specific heat capacity of each substance.*

1. 200 g of water at 30oC are mixed with 20 g of silver at 350oC. Find the final temperature of the system.

2. 26 g of water at 18oC are mixed with 49 g of water at 70oC. Find the final temperature of the system.

3. 84 g of water at 22oC are mixed with 150 g of ethanol at 88oC. Find the final temperature of the system.

4. 24 g of sodium chloride at 25oC are mixed with 272 g mercury at 50oC. Find the system’s final temperature.

5. 240 g of water at 20oC are mixed with a sample of iron at 500oC. The final temperature of the system is 42oC. Find the mass of the iron sample.

6. 75.0 g of water at 30oC are mixed with 83.8 g of a solid metal at 600oC. The final temperature of the system is 50oC. What is the metal?

7. A 135 g sample of aluminum at 400oC is placed in water at 25oC. The final temperature of the system is 80oC. Find the mass of the water.