

Name \_\_\_\_\_

1. What is the amount of heat needed to raise the temperature of 28 g of water from 25 degrees C to 30 degrees C?
2. What is the specific heat of iron if 25 g of a sample is raised 16 degrees by the addition 250 J?
3. What is the original temperature of a sample of water if the addition of 250 J of heat to a 20 g sample had a final temperature of 50 degrees C?
4. What is the amount of heat needed to melt a 700 g block of ice?
5. What is the heat of vaporization of carbon monoxide if 0.023J is needed to vaporize 20g?
6. What is the mass of a sample of gold (specific heat = 20.9 J/gC) if it takes 68 J to raise the temperature 37 degrees?
7. What is the amount of energy needed to heat a 2 g sample of silver from 39 degrees to 48 degrees? (C = 38 J/gC)

1. What quantity of heat would have to be added to 5000 grams of water to change its temperature from  $20^{\circ}\text{C}$  to  $80^{\circ}\text{C}$ ?
2. How much heat energy is required to raise the temperature of 8.0 g of aluminum from 293 K to 298 K? The specific heat of aluminum is  $0.90 \text{ J/gK}$ .
3. How many joules of heat energy are released when 20 grams of water is cooled from 293 K to 283 K?
4. A reaction takes place in a calorimeter containing 20 g of water at an initial temperature of  $20^{\circ}\text{C}$ . When the reaction is completed, the temperature of the water is  $16^{\circ}\text{C}$ . Was this reaction endothermic or exothermic? \_\_\_\_\_  
How do you know?  
\_\_\_\_\_  
How many joules of heat were transferred in the reaction?
5. An exothermic reaction releases 800 Joules of heat to a calorimeter containing 40 grams of water. Calculate the temperature change of the water.
6. By how many degrees will the temperature of 6.0 grams of lead increase if 11.7 J of heat is added to the metal. The specific heat of lead is  $0.13 \text{ J/gK}$ .
7. What is the final temperature when 168 joules of heat is added to 4 grams of water at 283 K?
8. A 500-gram sample of water at  $25^{\circ}\text{C}$  loses  $1.05 \times 10^4$  Joules of heat. What is the final temperature of the water?

1. What is the total number of joules of heat absorbed by 65.0 grams of water when the temperature of the water is raised from 25.0°C to 40.0°C?
2. When 200 grams of water cools from 50°C to 25°C, what is the total amount of heat energy released from the water?
3. A sample of water is heated from 10 °C to 15 °C by the addition of 126 joules of heat. What is the mass of the water?
4. The temperature of a sample of water is changed from 15 °C to 25 °C by the addition of 2100 joules. What is the mass of the water?
5. When 420 joules of heat energy is added to 10 grams of water at 20 °C, what will the final temperature of the water be?
6. When a 500 gram sample of water at 19 °C absorbs 8400 joules of heat, what will the temperature of the water change to?
7. The temperature of 50 grams of water was raised to 50 °C by the addition of 4200 joules of heat energy. What was the initial temperature of the water?

30. The heat capacity of silver is  $0.24 \text{ J/g } ^\circ\text{C}$ . What is the amount of heat used to change its temperature from  $0^\circ\text{C}$  to  $25^\circ\text{C}$ ?

31. If 50 grams of water is vaporized, how much heat is needed?

32. If 10 grams of water is frozen, how much heat is produced?

---