1. What occurs when a 35-gram aluminum cube at 100°C is placed in 90. grams of water at 25°C in an insulated cup?

   A) Heat is transferred from the aluminum to the water, and the temperature of the water decreases.
   B) Heat is transferred from the aluminum to the water, and the temperature of the water increases.
   C) Heat is transferred from the water to the aluminum, and the temperature of the water decreases.
   D) Heat is transferred from the water to the aluminum, and the temperature of the water increases.

2. A 50.0-gram block of copper at 10.0°C is carefully lowered into 100.0 grams of water at 90.0°C in an insulated container. Which statement describes the transfer of heat in this system?

   A) The water loses heat to the block until both are at 10.0°C.
   B) The block gains heat from the water until both are at 90.0°C.
   C) The water loses heat and the block gains heat until both are at the same temperature that is between 10.0°C and 90.0°C.
   D) The water gains heat and the block loses heat until both are at the same temperature that is between 10.0°C and 90.0°C.

3. A 10.0-gram sample of $H_2O(\ell)$ at 23.0°C absorbs 209 joules of heat. What is the final temperature of the $H_2O(\ell)$ sample?

   A) 5.0°C B) 18.0°C
   C) 28.0°C D) 50.0°C

4. The number of Joules needed to raise the temperature of 10 grams of water from 20ºC to 30ºC is

   A) 42 B) 84 C) 420 D) 1680

5. What is the total number of Joules of heat that must be absorbed to change the temperature of 100. grams of H_2O from 25.0ºC to 30.0ºC?

   A) 420. B) 2100
   C) 10500 D) 13000

6. How many grams of water will absorb a total of 2520 Joules of energy when the temperature of the water changes from 10.0°C to 30.0°C?

   A) 10.0 g B) 20.0 g
   C) 30.0 g D) 60.0 g

7. The temperature of 50.0 grams of water was raised to 50.0ºC by the addition of 4200 Joules of heat energy. What was the initial temperature of the water?

   A) 10.0ºC B) 20.0ºC
   C) 30.0ºC D) 60.0ºC

8. What is the total number of Joules of heat absorbed by 65.00 grams of water when the temperature of the water is raised from 25.00ºC to 40.00ºC?

   A) 63.00 J B) 105.0 J
   C) 4095 J D) 6846 J

9. How many Joules of heat energy are absorbed in raising the temperature of 10. grams of water from 5.0°C to 20.°C?

   A) 1.1×10^3 B) 8.4×10^2
   C) 6.3×10^2 D) 2.1×10^2

10. An 80.0-gram sample of water at 10.0°C absorbs 1680 Joules of heat energy. What is the final temperature of the water?

    A) 50.0°C B) 15.0°C
    C) 5.00°C D) 4.00°C