

CHE 101 - Homework - Ch 4b - Extra Practice 1
Heat and Specific Heat

Name: _____

Date: _____

Show all work for problems to receive full credit.

1. How many joules of energy are required to heat a block of Aluminium weighing 240 grams from 15.0°C to 250.°C. 1. _____

2. How many kJ of energy are required to heat a 250.0 mL of Sulfuric Acid from 50. K to 200. K, given that the specific heat is 3.185 J/g·°C. 2. _____

3. What is the specific heat of a metal that requires 455 kJ to heat a 250 kg block from 15.0°C to 17.5.°C. 3. _____

4. What volume of water (in mL) when heated from 25.5 °C to 29.5 °C requires 200. mJ of energy? 4. _____

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5. The initial temperature of a 25.0 gram block of lead is 25. °C. A Bunsen burner supplies 230 J of energy to the block. What is the final temperature of the block?

5. _____

6. You are cooking dinner for a friend and want to know how long before they arrive you should start boiling water. You fill a cast iron pot (sp. ht = 0.473 J/g·°C) weighing 500.0 grams with 2.0 L of water at 24°C. How long will it take to boil (in minutes) if your stove provides 1250 J/s of heat?

6. _____

7. The specific heat of brass is 0.300 J/g·°C. Would a brass pot or a cast iron pot heat up the water in the preceding problem faster.

7. _____

8. 250.0 grams of an unknown metal was heated to 200.0 °C and placed in a Styrofoam calorimeter containing 100.0 grams of water. The initial temperature of the water was 20.0 °C, and the final temperature was 75.0 °C.
What is the specific heat of the metal?

8. _____