

Name _____ Period _____

Heat Problems (Thermochemistry)

Table of specific heats (aka "c") for various substances.

Substance	Specific heat (J/g K)	Substance	Specific heat (J/g K)
Air	1.000	Iron	0.470
Aluminum	0.908	Lead	0.128
Carbon (diamond)	0.470	Mercury	0.139
Carbon (graphite)	0.670	Silver	0.235
Copper	0.380	Water	4.184
Gold	0.130	Wood	1.760

1. How much heat (q) would be required to increase the temperature of 50.0g of water from 23.5 °C to 30.0 °C?

Answer: _____

2. Re-calculate the heat (q) in question number 1 **using calories instead of Joules**. (The specific heat for water is 1 cal/g K)

Answer: _____

3. How much heat would be required to increase the temperature of 25.0g of gold from 23.5 °C to 37.5 °C?

Answer: _____

4. How much heat is required to increase the temperature 143g of silver by 26.5°C?

Answer: _____

5. How much heat is removed when the temperature of 823g of copper goes from 63.6°C to 50.0°C? (note the sign of ΔT !!!)

Answer: _____

6. A chunk of iron increased 35.6°C. If the heat added was + 18,689 Joules, what was the mass of the chunk of iron?

Answer: _____

7. A piece of aluminum was cooled from 37.0°C to 22.5°C. The heat change was determined to be -1.199 joules. What was the mass of the aluminum?

Answer: _____

8. A diamond was heated accidentally, the heat for the process was + 11.13 joules. If the mass of the diamond was 3.14g, calculate the temperature change in/of the diamond..

Answer: _____

9. A silver coin at 22.5°C was heated for 22.5 minutes, the heat added was determined to be 222 joules. What was the final temperature of the coin if its mass was 22.2g?

Answer: _____

10. A piece of wood was found to be 77.4°C after it was heated for 36 minutes. The mass of the wood was 156.7g and the heat was 489.6 joules. What was the initial (original temperature) of the wood before it was heated?

Answer: _____