

Physics 115 – Section 0101
Homework #7
Due Apr 01, Tuesday, 2008

Essay 1, 10 points

You take an aluminum-foil-wrapped baked potato out of the oven. You find that you can unwrap the aluminum foil with your hands, but the baked potato is too hot to hold. Why might this be? Discuss in terms of the concepts we have learned in class: heat, equilibrium, temperature, heat capacity, mass. (A potato is mostly water.)

Essay 2, 10 points

If you add heat to something, does its temperature always change? Cite an experiment from class that supports your answer.

Essay 3 10 points

Discuss the higher heat capacity of water helps to keep the climate temperate near the oceans.(9 points). Can you think of any other example from real life? (**1 point**)

Problem 1, 10 points

You have 100g of copper sitting in a pot of hot water. You take it out and place it in a cup with 50g of water at 22 degrees Celsius. Later, you measure the temperature of the water in the cup to be 30 degrees Celsius. What was the temperature of the hot water in the pot?

Problem 2, 10 points

You mix 100 g of water at 80 degrees Celsius with 100 g of an unknown substance at 20 degrees. The final temperature is 70 degrees. What is the specific heat of the unknown substance? How much heat was exchanged?